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EMC TEST REPORT

For The Carrier Grade Communication Rack Mount Server

Model: CG2200

Prepared for:

Kontron America, Inc.
1628 Browning Road
Columbia, SC 29210

Testing performed per the following:

PART 15, SUBPART B	AS/NZS CISPR 22	Industry Canada ICES-003	VCCI, Normative Annex 1	EMC Directive 2004/108/EC

PREPARED on July 25, 2012

REPORT NUMBER: 2012 07198889 EMC

PROJECT NUMBER: 10219214

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DOCUMENT HISTORY

REVISION	DATE	COMMENTS
-	July 25, 2012	Prepared By: Mark Phillips
-	July 25, 2012	Initial Release: Mike Krumweide

NOTE: Nemko USA, Inc. hereby makes the following statements so as to conform to the Subclause 5.10 Requirements of ISO/IEC 17025 "General Criteria For the Competence Of Testing and Calibration Laboratories":

- The unit described in this report was received at Nemko USA, Inc.'s facilities on June 7, 2011.
- Testing was performed on the unit described in this report on June 8, 2012 to June 16, 2012.
- The Test Results reported herein apply only to the Unit actually tested, and to substantially identical Units.
- This report does not imply the endorsement of the Federal Communications Commission (FCC), NVLAP or any other government agency.

CERTIFICATION

The compatibility testing and this report have been prepared by Nemko USA, Inc., an independent electromagnetic compatibility consulting and test laboratory.

Testing and data collection were accomplished in accordance with the test methods listed in this report.

I certify the data evaluation and equipment configuration herein to be a true and accurate representation of the sample's test characteristics, as of the test date(s), and for the design of the test sample utilized to compile this report.

Bruce Ketterling
EMC Division Manager, Nemko USA, Inc.

1. ADMINISTRATIVE DATA AND TEST SUMMARY

1.1. Administrative Data

CLIENT:	Kontron America, Inc. 1628 Browning Road Columbia, SC 29210 (803) 454-6445
CONTACT: E-Mail:	Bill Marsh bill.marsh@us.kontron.com
DATE (S) OF TEST:	June 8, 2012 to June 16, 2012.
EQUIPMENT UNDER TEST (EUT):	Carrier Grade Communication Rack Mount Server
MODEL:	CG2200
SERIAL NUMBER:	CG22220002
SOFTWARE REVISION:	RED HAT ENTERPRISE LINUX 6.2
HIGHEST FREQUENCY GENERATED OR USED:	2.1 GHZ
CONDITION UPON RECEIPT:	Suitable for Test
TEST SPECIFICATION:	Radio Frequency Emissions in accordance with requirements of EN 55022: 2010+AC: 2011, VCCI, V-3/2010.04, Normative Annex 1, AS/NZS CISPR 22:2009, CAN/CSA-CISPR 22-02, and FCC Part 15B. Electromagnetic Immunity tests in accordance with requirements of EN 55024: 2010

1.2. Referenced Standards for Radiated Emissions

Test Type	In Accordance with Document	Document Title
Conducted and Radiated Emissions	FCC 15B, Sec. 107, FCC 15B, Sec. 109	Title 47 -- Telecommunications, Federal Communications Commission Part 15 – Radio Frequency Devices
Conducted and Radiated Emissions	EN 55022: 2010+AC: 2011	Information technology equipment—Radio disturbance characteristics —Limits and methods of measurement
Conducted and Radiated Emissions	VCCI, V-3/2010.04, Normative Annex 1	TECHNICAL REQUIREMENTS, under the Voluntary Control Council for Interference by Information Technology Equipment
Conducted and Radiated Emissions	CAN/CSA-CISPR 22-02	Limits and methods of measurement of radio disturbance characteristics of information technology equipment.
Conducted and Radiated Emissions	AS/NZS CISPR 22:2009	Limits and methods of measurement of radio disturbance characteristics of information technology equipment.

1.3. Referenced Standards for Electromagnetic Compatibility

Test Type	In Accordance with Document	Document Title
Power Line Harmonics	EN 61000-3-2: 2006+A1:2009+A2:2009	Electromagnetic Compatibility, Limits for Harmonic Current Emissions, Equipment Input Current ≤ 16A
Power Line Flicker	EN 61000-3-3: 2008	Electromagnetic Compatibility, Limitation of Voltage Fluctuations and Flicker In Low-Voltage Supply Systems for Equipment with Rated Current ≤ 16A
Electrostatic Discharge Immunity	IEC 61000-4-2: 2008	Electromagnetic Compatibility—Testing and measurement techniques - Electrostatic discharge immunity test
Radio Frequency Immunity	IEC 61000-4-3: 2006+A2: 2010	Electromagnetic Compatibility—Testing and measurement techniques - Radiated radio frequency electromagnetic field immunity test
Electrical Fast Transient Burst Immunity	IEC 61000-4-4: 2004+A1: 2010	Electromagnetic Compatibility—Testing and measurement techniques - Electrical fast transient / burst immunity
Power Line Surge Immunity	IEC 61000-4-5: 2005	Electromagnetic Compatibility—Testing and measurement techniques - Surge immunity test
RF Common Mode Immunity	IEC 61000-4-6: 2008	Electromagnetic Compatibility—Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields
Power Frequency Magnetic Field	IEC 61000-4-8: 2009	Electromagnetic Compatibility—Testing and measurement techniques - for Power Frequency Magnetic Field, Immunity Test
Voltage Dips and Short Interruptions Immunity	IEC 61000-4-11: 2004	Electromagnetic Compatibility—Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests

1.4. Test Summary

1.4.1. Emissions Test Summary

The Compliance Status is a judgment based on the calculated highest emissions to appropriate standard limits. Measurement uncertainty values, provided on calibration certificates, were not be used in the judgment of the final status of compliance.

Test Methods	Frequency Range	Compliance Status
FCC 15B, Sec. 107, Class "A" Conducted Emissions	0.15 MHz – 30 MHz	**PASS**
FCC 15B, Sec. 109, Class "A" Radiated Emissions	30 MHz – 18 GHz	**PASS**
VCCI, V-3/2010.04, Normative Annex 1, Class "A" Conducted Emissions Site Registration #: C-4055	0.15 MHz – 30 MHz	**PASS**
VCCI, V-3/2010.04, Normative Annex 1, Class "A" Telecom Conducted Emissions Site Registration #: T-1102	0.15 MHz – 30 MHz	**PASS**
VCCI, V-3/2010.04, Normative Annex 1, Class "A" Radiated Emissions Site Registration #: R-3626 & G-385	30 MHz – 6000 MHz	**PASS**
AS/NZS CISPR 22:2009, Class "A" Conducted Emissions	0.15 MHz – 30 MHz	**PASS**
AS/NZS CISPR 22:2009, Class "A" Radiated Emissions	30 MHz – 1000 MHz	**PASS**
*EN 55022: 2010+AC: 2011, Class "A" Conducted Emissions	0.15 MHz – 30 MHz	**PASS**
EN 55022: 2010+AC: 2011, Class "A" Telecom Conducted Emissions	0.15 MHz – 30 MHz	**PASS**
*EN 55022: 2010+AC: 2011, Class "A" Radiated Emissions	30 MHz – 6000 MHz	**PASS**
EN 61000-3-2: 2006+A1:2009+A2:2009 Power Line Harmonics	up to the 40th Harmonic	**PASS**
EN 61000-3-3: 2008 Power Line Flicker	*d*max shall not exceed 4 %, *d(t)* during a voltage change shall not exceed 3,3 % for more than 500 ms	**PASS**

*These Test Standards satisfy the requirements of compliance with Industry Canada Interference-Causing Equipment Standard ICES-003.

Test Supervisor: 

Michael T. Krumweide, Nemko USA, Inc.

1.4.2. Immunity Test Summary

Test Methods	Minimum Criterion Level Required as per EN 55024	Criterion Level Tested	Compliance Status
IEC 61000-4-2: 2008 - ESD Immunity	**Criterion B** ±8 kV air discharge, ±4 kV contact discharge	**Criterion B** ±8 kV Air Discharge, ±4 kV Contact Discharge	**PASS**
IEC 61000-4-3: 2006+A2: 2010 -Radio Frequency Immunity	**Criterion A** 3 V/m from 80-1000 MHz (80% AM at 1kHz)	**Criterion A** 3 V/m from 80-1000 MHz (80% AM at 1kHz)	**PASS**
IEC 61000-4-4: 2004+A1: 2010 -Electrical Fast Transient Immunity	**Criterion B** Power line pulses of ± 1 kV; I/O line pulses of ± 0.5 kV	**Criterion B** Power Line Pulses of ± 1 kV; I/O Line Pulses of ± 0.5 kV	**PASS**
IEC 61000-4-5: 2005 -Surge Immunity	**Criterion B** ±2kV common mode surges, ±1kV differential mode surges	**Criterion B** ±2kV Common Mode Surges, ±1kV Differential Mode Surges	**PASS**
IEC 61000-4-6: 2008 -RF Common Mode Immunity	**Criterion A** 150 kHz - 80 MHz at 3 Vrms 1 kHz 80% amplitude modulated	**Criterion A** 150 kHz - 80 MHz at 3 Vrms 1kHz 80% amplitude modulated	**PASS**
IEC 61000-4-8: 2009 Power Frequency Magnetic Field	**Criterion A** Inductive loop at 50 Hz, to 1.0 amps (rms) per meter	**Criterion A** Inductive loop at 50 Hz, to 1.0 amps (rms) per meter	**PASS**
IEC 61000-4-11: 2004 - Voltage Dips and Short Interruptions	**Criterion B and C** Voltage Dips of 30% and >95%; Interruptions of >95%.	**Criterion B and C** Voltage Dips of 30% and >95%; Interruptions of >95%.	**PASS**

Test Supervisor: Michael T. Krumweide, Nemko USA, Inc.

Refer to the test results section for further details.

2. SYSTEM CONFIGURATION

2.1. System Components and Power Cables

DEVICE	MANUFACTURER MODEL # SERIAL #	POWER CABLE
EUT - Carrier Grade Communication Rack Mount Server	Kontron America, Inc. Model: CG2200 Serial #: CG22220002	AC: 1.8m, unshielded, 3 wire, 16AWG, IEC DC: 2m, unshielded, 2 wire
EUT - DC power supply	3Y Power Technology PN: YM-2651SAR SN: SB000G041214000140	2 meter, unshielded, 15 AWG, 2-wire
EUT - DC power supply	3Y Power Technology PN: YM-2651SAR SN: SB000G041214000129	2 meter, unshielded, 12 AWG, 2-wire
EUT - AC power supply	3Y Power Technology PN: YM-2651RAR SN: SB000G001215000016	1.5 meter, unshielded, 14 AWG, 3-wire, IEC connector
EUT - AC power supply	3Y Power Technology PN: YM-2651RAR SN: SB000G001215000014	1.5 meter, unshielded, 14 AWG, 3-wire, IEC connector
Support – Ethernet switch	Linksys Model: SRW2024 SN: RIE40K104534	2.5 meter, unshielded, 18 AWG, 3-wire, IEC connector
Support – LCD monitor 17”	Dell Model: E177FPb SN: CN-OUH572-46633-697-2DLS	1.8 meter, unshielded, 18 AWG, 3-wire, IEC connector
Support – Keyboard	IBM	NA

	Model: SK-8805 SN: 1472434	
Support – Mouse	Microsoft Model: Intellimouse Optical USB PN: XB00472-105 PID: 55250-576-4324735-0	NA
Support – external USB hard drive	Seagate PN: 9SCAN1-500 SN: 2GH72N9S	NA
Support – external USB hard drive	Seagate PN: 9SCAN1-500 SN: 2GH77S3L	NA
Support – external USB hard drive	Seagate PN: 9SCAN1-500 SN: 2GH76W03	NA

2.2. Device Interconnection and I/O Cables

Connection	I/O Cable
EUT to front panel Ethernet	4m, shielded, 26AWG, CAT5e, with resistive load
EUT to USB Hard Drive	45cm, shielded, USB 3.0
EUT to LCD monitor 17"	1.8 m, shielded, VGA, DB15 connectors with molded ferrite
EUT to Ethernet Switch	Ethernet, 4.5 meters (x15)
EUT to alarms	1.5m, shielded, 26AWG, DB15 to unterminated.
EUT to com port	1.75m, shielded, DB9 to resistive load.
EUT to USB Hard Drive	45cm, shielded, USB 3.0
EUT to USB Hard Drive	45cm, shielded, USB 3.0
EUT to Keyboard	1.5m, shielded, USB to Hardwired with molded ferrite
EUT to Mouse	1.8m, shielded, USB to Hardwired with molded ferrite

2.3. Description and Method of Exercising the EUT

The CG2200 is an Carrier Grade Communication Rack Mount Server. Its function is to provide services to telecom users from the CG2200 computing platform. The EUT was exercised by running multiple self-tests simultaneously as follows: "Ping All" runs ping sessions to fifteen Ethernet ports, "Scrolling H" runs a continuous stream of H to a window, "BitProV2 Linux" opens ten windows running CPU Math, Memory Write, Disk Start Up, Disk Media read/write patterns/functions (x5), serial port Loopback (x2). If the CG2200 is disrupted, or there is loss of functionality as can be seen on the LCD monitor, then this may be considered a failure. The CG2200 has Red Hat Enterprise Linux 6.2.

The EUT's performance during test was evaluated against the performance criterion specified by applicable test standards. Performance results are detailed in the test results section of this report.

2.4. Design Modifications for Compliance

Device: Carrier Grade Communication Rack Mount Server
Model: CG2200

The following design modifications were made to the EUT during testing.

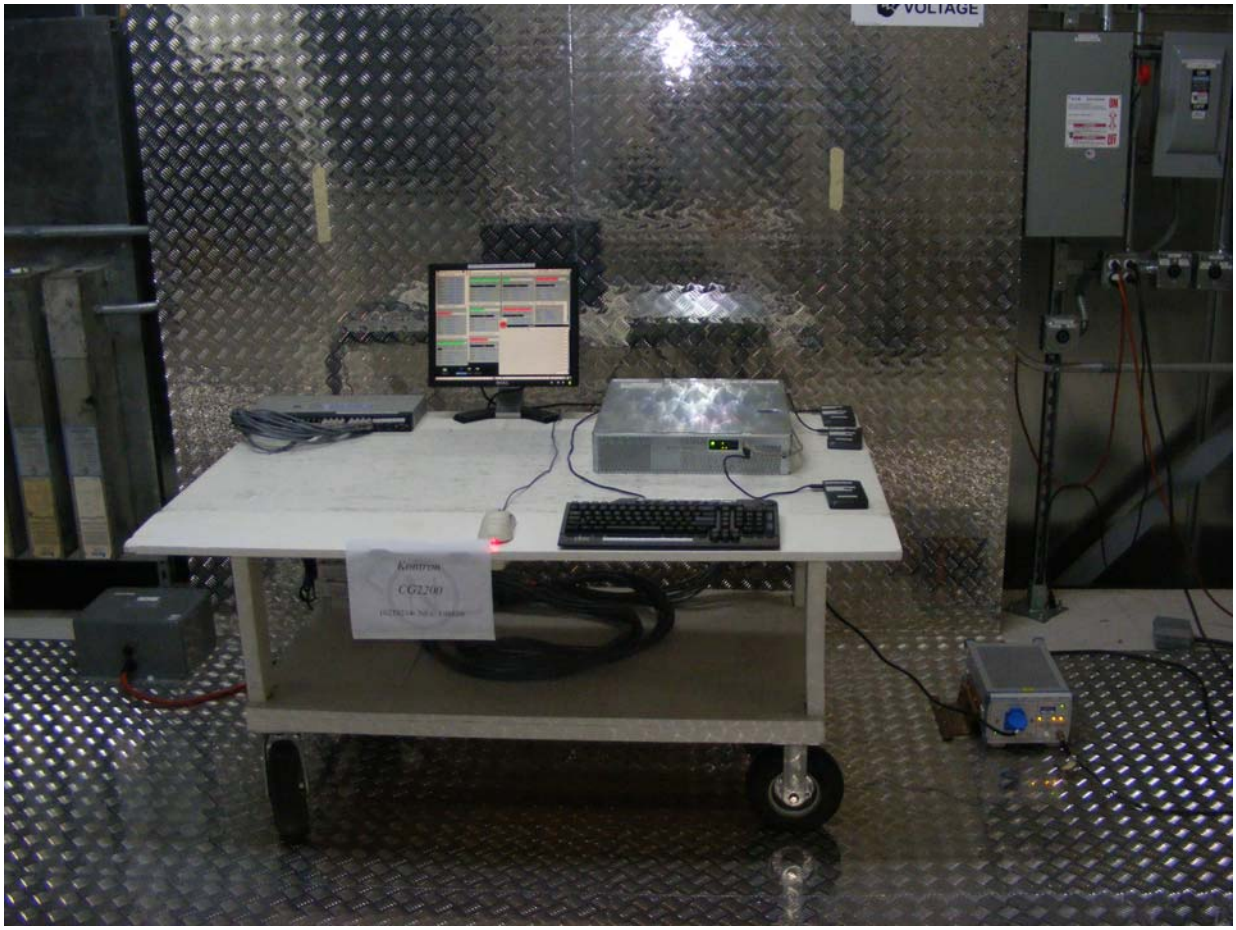
None. No design modifications were made to the EUT during testing.

Photograph 1.EUT Front and Rear

EUT Front

EUT Rear

Photograph 2. General EUT Test Configuration



3. DESCRIPTION OF TEST SITE AND ACCREDITATION

3.1. Description of Test Site

The test site is located at 2210 Faraday Ave., Suite 150, Carlsbad, CA 92008. Radiated emissions measurements are performed in the 10 meter Semi-Anechoic chamber, which conforms to the volumetric normalized site attenuation (VNSA) for three and ten-meter measurements. The chamber also conforms to the SVSWR compliance requirements for 1-18 GHz measurements. The VNSA and SVSWR meet the technical requirements, as set, in the CISPR 16 and ANSI C63.4 documents. Facility test areas for conducted emissions and immunity testing also meet the construction and characteristics, as required by CISPR 16 and ANSI C63.4 documents.

Emissions measurements are performed using TILE software. Version 4.0.A.7 for radiated and version 3.4.K.24 for conducted.

3.2. Facility Accreditation and Authorization

Nemko USA, Inc. is accredited through National Voluntary Laboratory Accreditation Program.

NVLAP LAB CODE 200116-0

Organization	Registration and Recognition numbers
Federal Communications Commission	0013750831 / US5058
VCCI	R-3856 / G-549 (Radiated emissions) and C-4320 / T-1315(Conducted emissions)
Industry Canada	2040B-3
Korean Ministry (APEC Tel MRA)	US0088

This report does not imply the endorsement of NVLAP or any other government agency.

4. DESCRIPTION OF TESTING METHODS

4.1. Introduction

Nemko USA, Inc. is accredited to ISO/IEC 17025 by the National Voluntary Laboratory Accreditation Program (NVLAP) for Electromagnetic Compatibility and Telecommunications testing. Part of the accreditation process involves the demonstration of competence in various test methods.

Prior to the beginning of work, Nemko personnel work with their clients to ensure the proper test standards and test methods are utilized. Applicable tests and the minimum criteria for a pass condition are listed in the administrative section of this report.

4.2. Test Methods

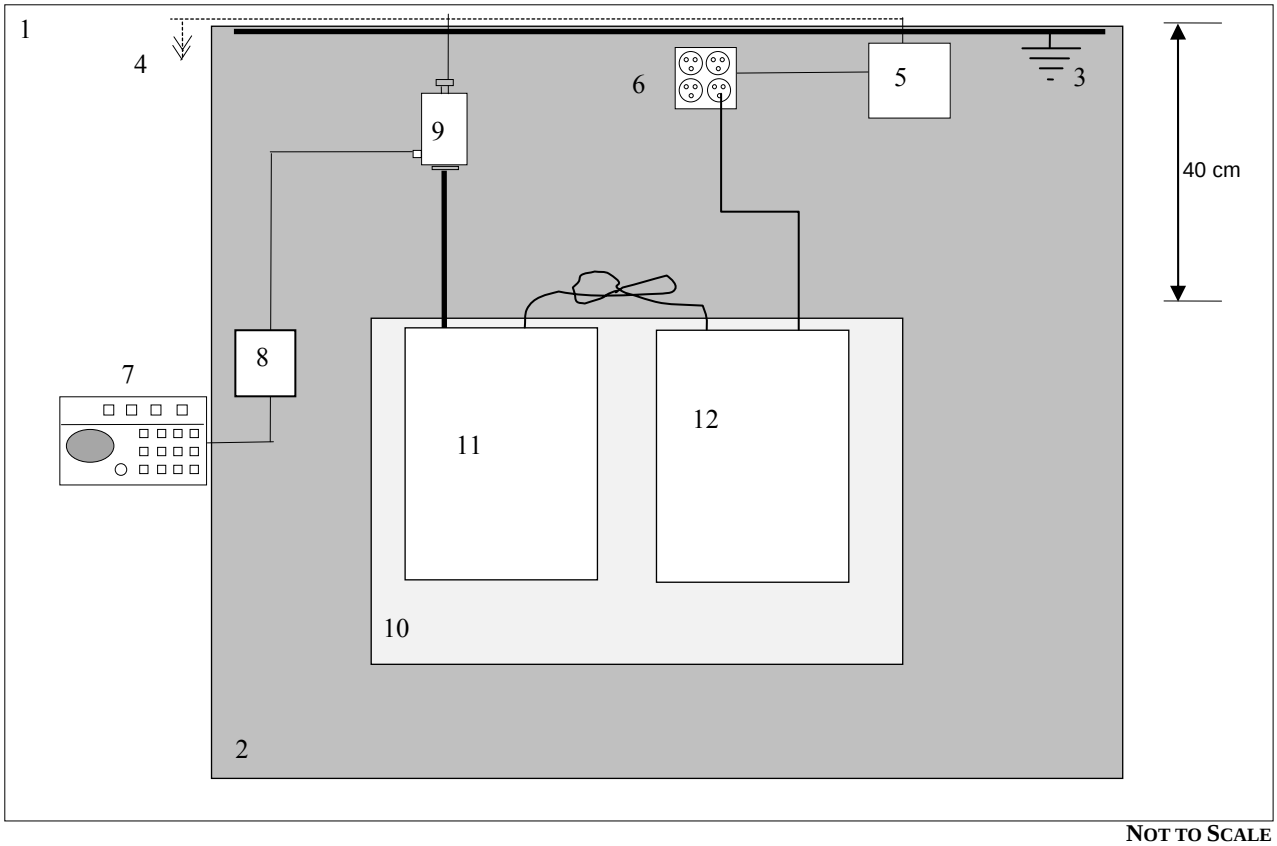
The harmonized documents published for Information Technology Equipment are EN 55022: 2010+AC: 2011 for radio frequency emissions and EN 55024: 2010 for electromagnetic immunity. The methods employed to test the emissions and immunity characteristics of the Equipment Under Test are those mandated by the European Standards EN 55022 and EN 55024.The applicable tests and the minimum criteria for a pass condition that are listed in the administrative section of this report are taken from these standards.

Digital devices sold in Canada are required to comply with the Interference Causing Equipment Standard for Digital Apparatus, ICES-003, Issue 4.These test methods and limits are specified in the Canadian Standards Association's Standard CAN/CSA-CISPR 22-02 and are "essentially equivalent" with the CISPR 22 (EN55022) rules for unintentional radiators per EMCAB-3, Issue 4 (December 2005).No additional testing is required for compliance to ICES-003.

4.3. Configuration and Methods of Measurements for Conducted Emissions

This test measures the levels emanating from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices. Testing was performed in accordance with the test standard(s) referenced in the test summary section of this report. The Equipment Under Test (EUT) was configured based upon the requirements of the applicable test standard.

Figure 1. Conducted Emissions Test Setup Diagram



NOT TO SCALE

CONFIGURATION LEGEND

1. Test Laboratory (6 X 6 meters)
2. Ground Plane (15 square meters)
3. Vertical Conducting Wall (Attached to ground plane via ground rod)
4. Mains Power for Devices
5. Artificial Mains Network (AMN) for peripheral devices
6. Power Distribution Box for peripheral devices
7. Spectrum Analyzer with Quasi-Peak Detector
8. Coax input from EUT AMN to Spectrum Analyzer
9. AMN for EUT
10. Non-conducting table
11. EUT
12. Associated / Support System

4.4. Configuration and Methods of Measurements for Radiated Emissions

This test measures the levels emanating from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices. Testing was performed in accordance with the test standard(s) referenced in the test summary section of this report. The Equipment Under Test (EUT) was configured based upon the requirements of the applicable test standard. Initial prescans for radiated emissions were performed as suggested per ANSI 63.22. The antenna is positioned at several heights while the EUT is rotated 360°. At each antenna height, the receiver scans and records the maximum emissions in the required frequency range as required by the applicable standards. From the recorded scans, a list of discrete frequencies is developed. To ensure that the maximum emission at each discrete frequency of interest is observed, the receive antenna is varied in height from one to four meters and rotated to produce horizontal and vertical polarities while the turntable is rotated to determine the worst emitting configuration. The numerical results are included herein to demonstrate compliance. The numerical results of the test are included herein to demonstrate compliance.

The numerical results that are applied to the emissions limits are arrived as demonstrated by the example below:

The numerical results that are applied to the emissions limits are arrived as demonstrated by the example below:

A	B	C	D	E	F	G	H	I
Measurement Frequency (MHz)	Meter Reading (dBµV)	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments

A. Frequency Measured in MHz.

B. Meter Reading: Emission Amplitude as measured with the antenna in dBµV, this is from the EMI receiver or Spectrum Analyzer.

C. Turn Table reading in degrees.

D. Antenna Height in centimeters.

E. Corrected Reading, the meter reading with the antenna factor, cable loss, attenuator loss, and preamplifier gain added in. This is the emission value to compare to the limit.

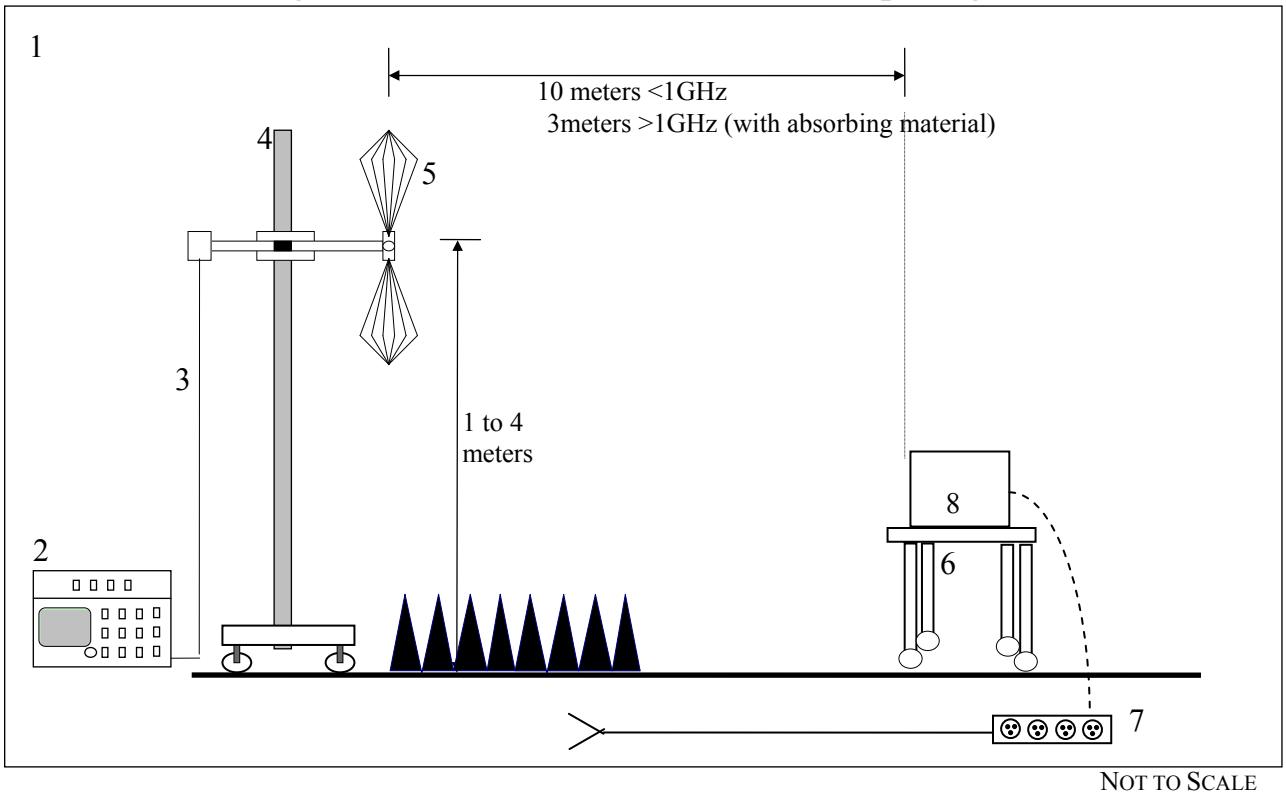
F. Limit from the specification.

G. Margin: difference in dB of Corrected Reading and Specification Limit, negative results indicate a margin value below the specification limit.

H. Pass Fail: Result; EUT does or does not comply at this frequency.

I. Comments. If any, the technician enters remarks special to the test performed.

Figure 2. Radiated Emissions Test Setup Diagram



NOT TO SCALE

CONFIGURATION LEGEND

1. Semi Anechoic chamber, absorbing material on ground plane for >1GHz measurements
2. Spectrum Analyzer with Quasi-Peak Detector
3. Coax interconnect from Receive Antenna to Spectrum Analyzer
4. Antenna Mast with motorized mounting assembly
5. Receive Antenna (basic relative position)
6. Non-Conducting table 80 cm above ground plane
7. Mains power for devices
8. EUT and Associated System

Power Line Harmonics: EN 61000-3-2: 2006+A1:2009+A2:2009

This test evaluates the potential for the EUT to cause distortion on the AC power lines. Testing was performed in accordance with EN 61000-3-2.It is applicable to electrical and electronic equipment having an input current up to and including 16 amps per phase, and intended to be connected to public low-voltage distribution systems.

Basic requirements of the AC source include a ± 2% voltage regulation and a ± 0.5% frequency limit. A low distortion sine wave output is required to ensure that the AC source does not adversely contribute distortion to the load, meeting the following limits:

- 0.9% for 3rd order harmonics
- 0.4% for 5th order harmonics
- 0.3% for 7th order harmonics
- 0.2% for 9th order harmonics
- 0.2% for even harmonics of order 2 to 10
- 0.1% for odd harmonic order from 11 to 40

For further information, please refer to the technical sections in the EN 61000-3 in addition to the test results section and photographs of the test set-up provided in this report.

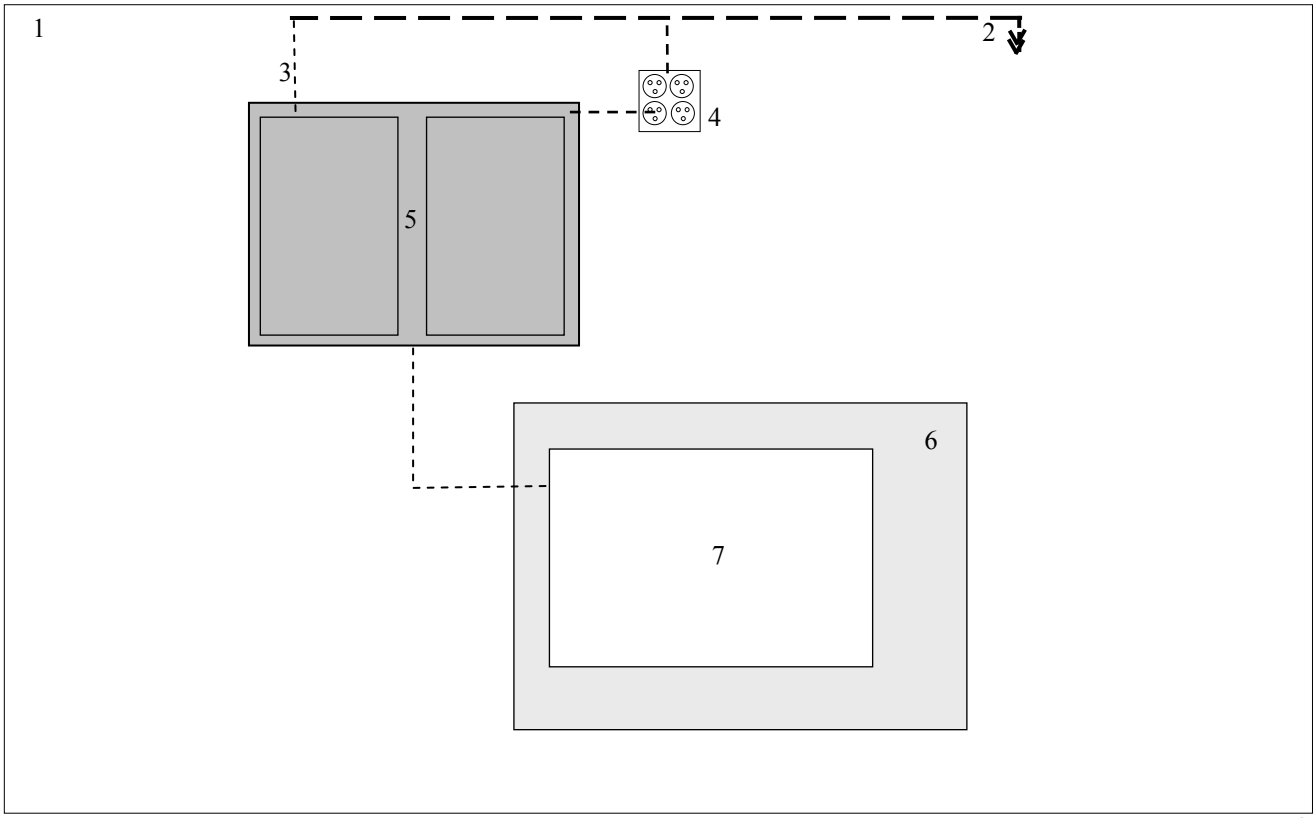
4.5. Power Line Fluctuations/Flicker: EN 61000-3-3: 2008

Testing was performed in accordance with EN 61000-3-3.It is applicable to household appliances and similar electrical and electronic equipment having an input current up to and including 16 amps per phase. The objective of this standard is to set limits for voltage fluctuations of equipment within its scope, and ensures that home appliances and certain other electrical equipment do not adversely affect lighting equipment when connected to the same utility power line. Large current variations combined with high utility line power impedance can cause excessive changes in the AC supply voltage. If these voltage changes are repeated at short intervals, objectionable fluctuations of luminance (flicker) could be generated in illumination sources connected to the same utility line network.

This test requires an AC power source with a standard impedance network and a power analyzer. Measurements of steady state and fluctuating harmonics, along with flicker and voltage deviations, are conducted using a power analyzer, often called a “flickermeter.”

For further information, please refer to the technical sections in the EN 61000-3-3 in addition to the test results section and photographs of the test set-up provided in this report.

Figure 3. Harmonics & Flicker Test Setup Diagram



NOT TO SCALE

CONFIGURATION LEGEND

1. Test Laboratory (6 X 6 meters)
2. AC Power for Devices
3. 120/208VAC/60Hz Power for Harmonics/Flicker Test Equipment
4. 115V/60 Hz Power Distribution Box
5. Power Source Rack with Computer Analysis System
6. Non-conducting table
7. EUT and Associated System

4.6. Device Performance Criteria for Immunity Tests

- **Criterion A** - The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

- **Criterion B** - During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. After the test, the equipment shall continue to operate as intended without operator intervention. The performance level may be replaced by a permissible loss of performance. If the manufacturer does not specify the minimal performance level (or the permissible performance loss), then either of these may be derived from the product description and documentation, or by what the user may reasonably expect from the equipment if used as intended.

- **Criterion C** - Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

For each test method, the test standard specifies the appropriate criterion to be met.

4.7. Electrostatic Discharge Immunity: IEC 61000-4-2: 2008

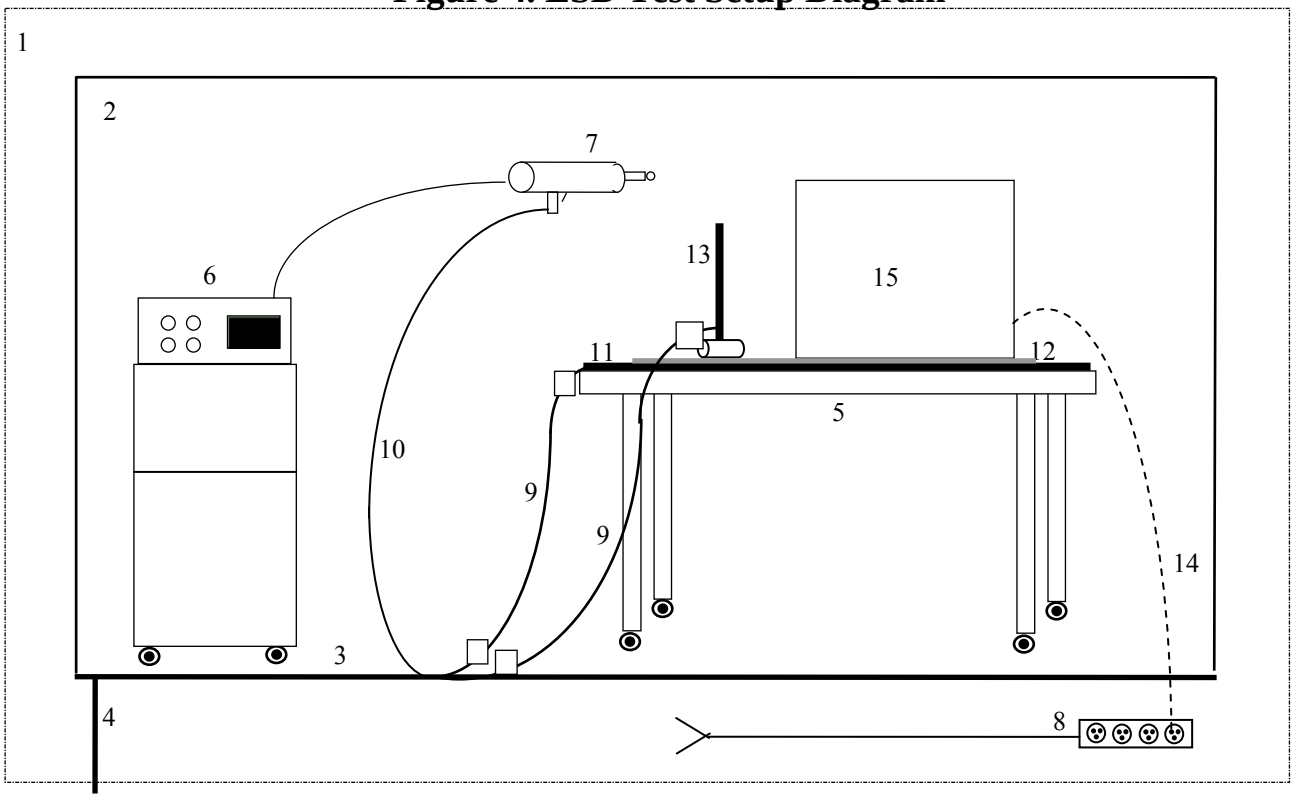
This test simulates electrostatic events (similar to being "zapped" by touching a light switch) and evaluates the ability of the EUT to tolerate such events. Testing was performed in accordance with IEC 61000-4-2.Tabletop devices are placed on an insulated mat on a horizontal coupling plane. Air discharges and contact charges are made to the EUT on connectors and conducting surfaces (as illustrated in the Test Results section of this Test Report).The discharges shall be applied in two ways:

a) Contact Discharges to the conductive surfaces and to coupling planes:
The EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity, at a minimum of four test points (a minimum of 50 discharges at each point).One of the test points shall be subjected to at least 50 indirect discharges (contact) to the center of the front edge of the horizontal-coupling plane. The remaining three test points shall each receive at least 50 direct contact discharges. If no direct contact test points are available, then at least 200 indirect discharges shall be applied in the indirect mode.

b) Air Discharge at slots and apertures, and insulating surfaces:
On those parts of the EUT where it is not possible to perform contact discharge testing, the equipment should be investigated to identify user accessible points where breakdown may occur. This investigation should be restricted to those areas normally handled by the user. A minimum of 10 single air discharges of each polarity and test level shall be applied to the selected test point for each area.

For further information, please refer to the technical sections in the IEC 61000-4-2 publication in addition to the test results section and photographs of the test set-up provided in this report.

Figure 4. ESD Test Setup Diagram



NOT TO SCALE

CONFIGURATION LEGEND

1. Test Laboratory (6 x 7 meters)
2. Vertical Conducting Wall (3 x 3 m, grounded)
3. Ground Plane (14 square meters), grounded to Grounding Rod
4. Ground Rod extending 3 m under ground plane
5. Non-Conducting table for ESD Simulator Control Box
6. ESD Simulator Control Box on cart
7. Electro-Static Discharge (ESD) Gun (hand held, grounded to grounding rod)
8. Mains power for devices
9. Ground strap with two 470 kOhm resistors
10. Grounding Strap
11. Horizontal Coupling Plane
12. Insulating Mat
13. Vertical Coupling Plane
14. EUT Power Cord
15. EUT and Associated System

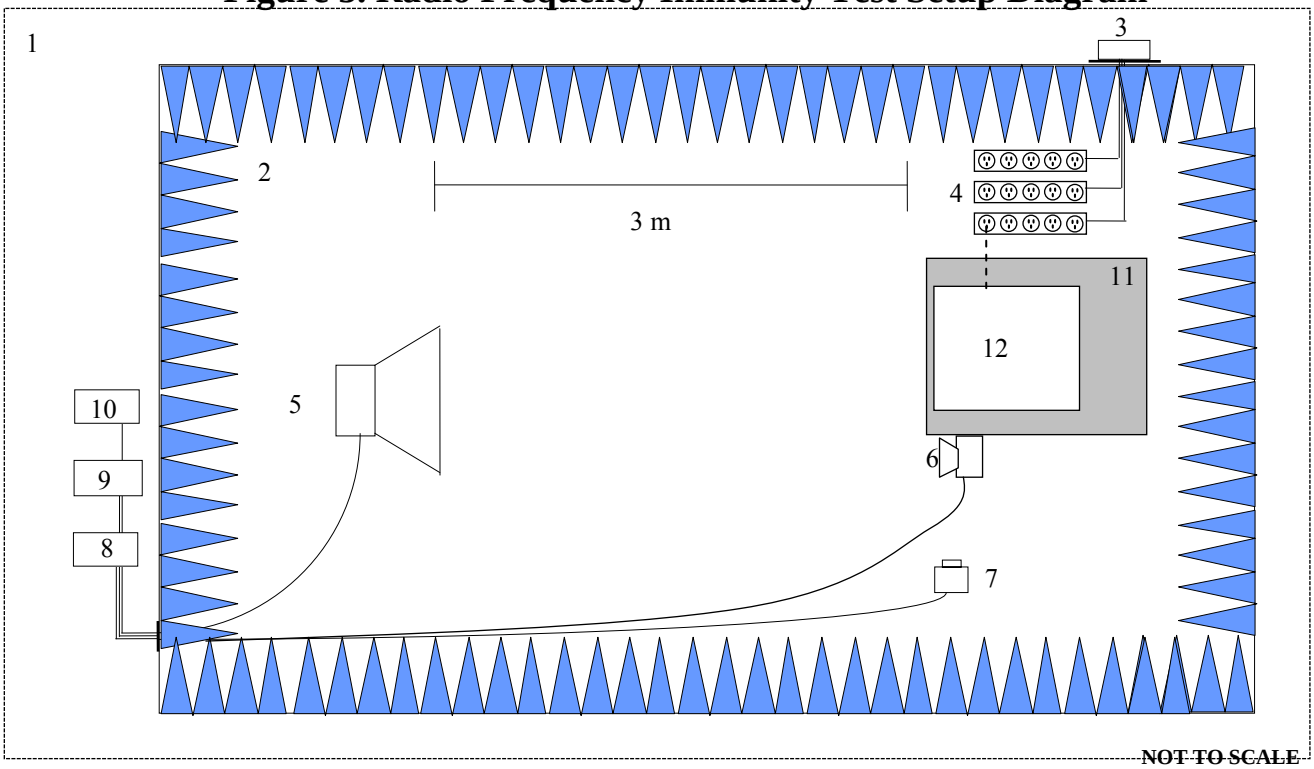
4.8. Radio Frequency Immunity: IEC 61000-4-3: 2006+A2: 2010

This test bombards the EUT with electric fields that may couple into the system via chassis slots and interface cables and evaluates the product's immunity. Testing was performed in accordance with IEC 61000-4-3.The RF immunity test entails subjecting the equipment under test to a uniform field of radiated electromagnetic energy of a specified field strength and frequency, and monitoring the functionality of the device as the frequency is swept over a specified frequency range.

The EUT is set up inside a shielded, semi-anechoic chamber with a radiating antenna at a distance of 3 meters from the EUT. The antennas used for radiating have a VSWR characteristic of 2:1 or better, Per CISPR16.

For further information, please refer to the technical sections in the IEC 61000-4-3 publication in addition to the test results section and photographs of the test set-up provided in this report.

Figure 5. Radio Frequency Immunity Test Setup Diagram



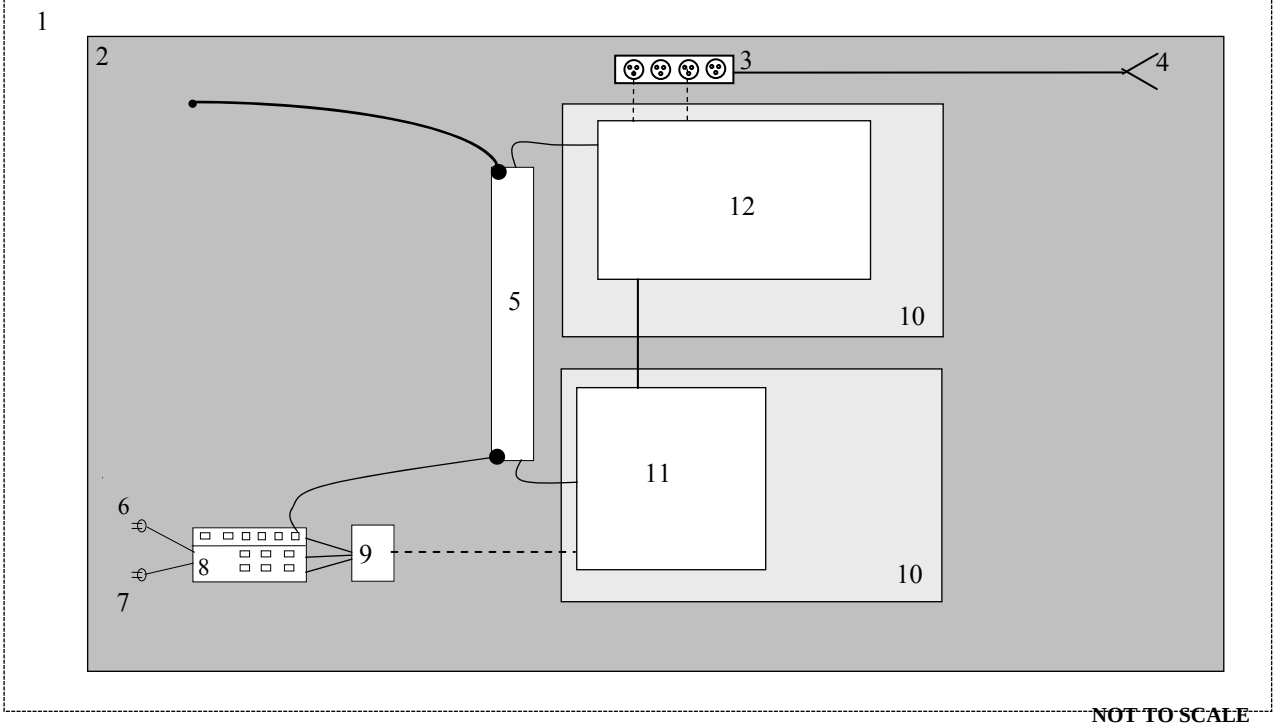
CONFIGURATION LEGEND

1. Test laboratory
2. Shielded anechoic chamber (Ferrite tile and absorber material on walls and ceiling; ferrite tiles on floor)
3. Power Line filters and power distribution breaker box
4. Power strip for EUT and peripherals
5. Transmit antennas
6. E-Field sensor
7. Monitoring camera for EUT
8. Broadband power amplifiers
9. E-Field probe monitoring system
10. Signal Generators
11. Non-Conducting table
12. EUT and Associated System

4.9. Electrical Fast Transient Immunity: IEC 61000-4-4: 2004+A1: 2010

This test injects a transient/burst interference onto the AC/DC power supply and signal I/O lines. Testing was performed in accordance with IEC 61000-4-4.The standard configuration for “type tests” outlined in IEC 61000-4-4 is used. For further information, please refer to the technical sections in the IEC 61000-4-4 in addition to the test results section and photographs of the test set-up provided in this report.

Figure 6. EFT Immunity Test Setup Diagram



CONFIGURATION LEGEND

1. Test Laboratory (6 x 7 meters)
2. Ground Plane
3. Power Strip for Peripherals from power line filter
4. Mains Power for Devices
5. Capacitive Coupling Clamp (grounded)
6. Mains Power for EUT
7. AC Power for Fast Transient Noise Generator (120V)
8. Fast Transient Noise Generator
9. Coupling Network
10. 10cm Non-Conducting Platform
11. EUT
12. Associated System

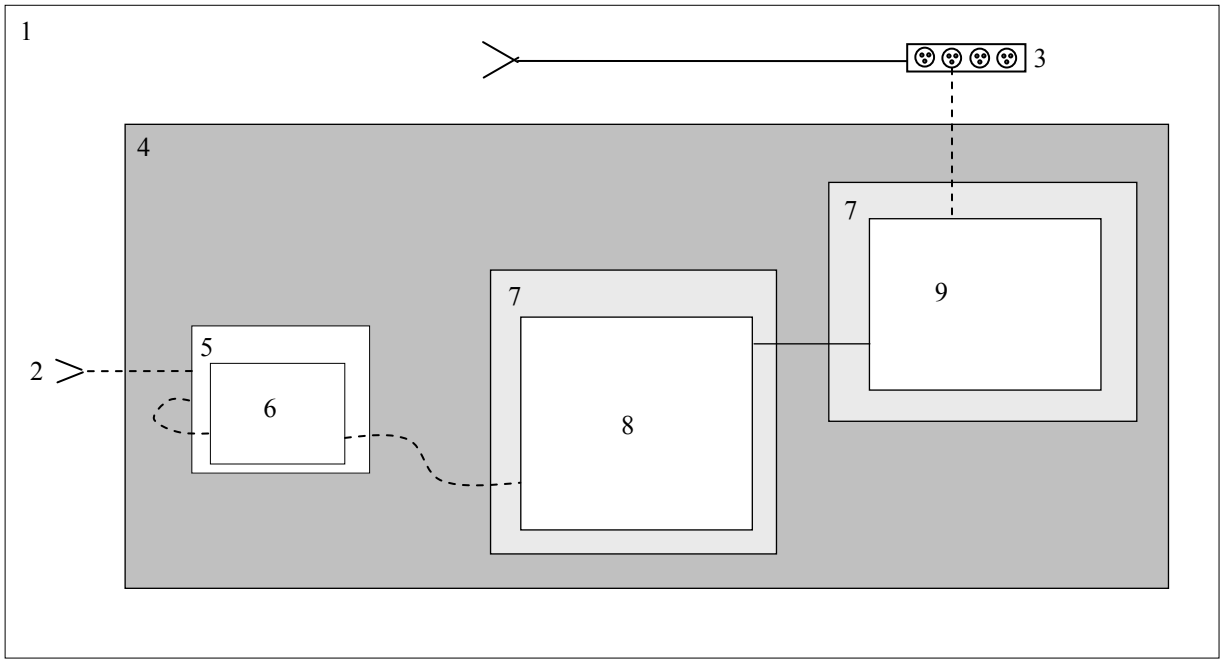
4.10. Power Line Surge Immunity: IEC 61000-4-5: 2005

This test simulates a lightning event by inducing transients onto the AC/DC power supply lines in common and differential mode. Testing was performed in accordance with IEC 61000-4-5.
Each device was tested in a total of three surge configurations:

Surge #1: Combination Wave, Line to Protective Earth with 9uF and 10Ohm, common mode, generator earthed.
Surge #2: Combination Wave, Neutral to Protective Earth with 9uF and 10Ohm, common mode, generator earthed.
Surge #3: Combination Wave, Line to Neutral with 18uF, differential mode, generator floated.

For further information, please refer to the technical sections in the IEC 61000-4-5 in addition to the test results section and photographs of the test set-up provided in this report.

Figure 7. Power Line Surge Immunity Test Setup Diagram



NOT TO SCALE

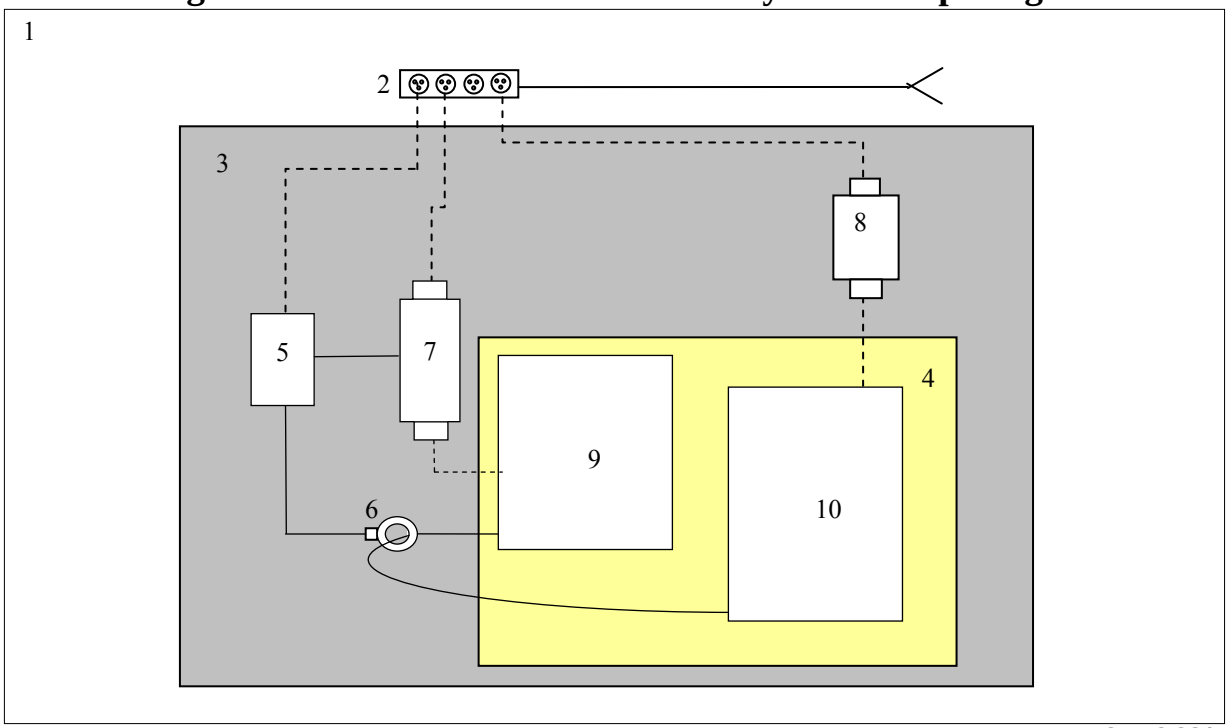
CONFIGURATION LEGEND

1. Test Laboratory
2. AC power for Devices
3. Power strip for associated devices from power line filter
4. Copper Ground Plane
5. Surge Generator
6. Surge Coupling Network
7. Nonconductive tables 80cm above Ground Plane
8. EUT
9. Associated System

4.11. Radio Frequency Conducted Common Mode Immunity: IEC 61000-4-6: 2008

This test injects a disturbance directly onto AC/DC power and signal I/O cables. Testing was performed in accordance with IEC 61000-4-6.The standard configuration as outlined in the IEC 61000-4-6 was used. For further information, please refer to the technical sections of the IEC 61000-4-6 publication in addition to the test results section and photographs of the test set-up provided in this report.

Figure 8. RF Common Mode Immunity Test Setup Diagram



NOT TO SCALE

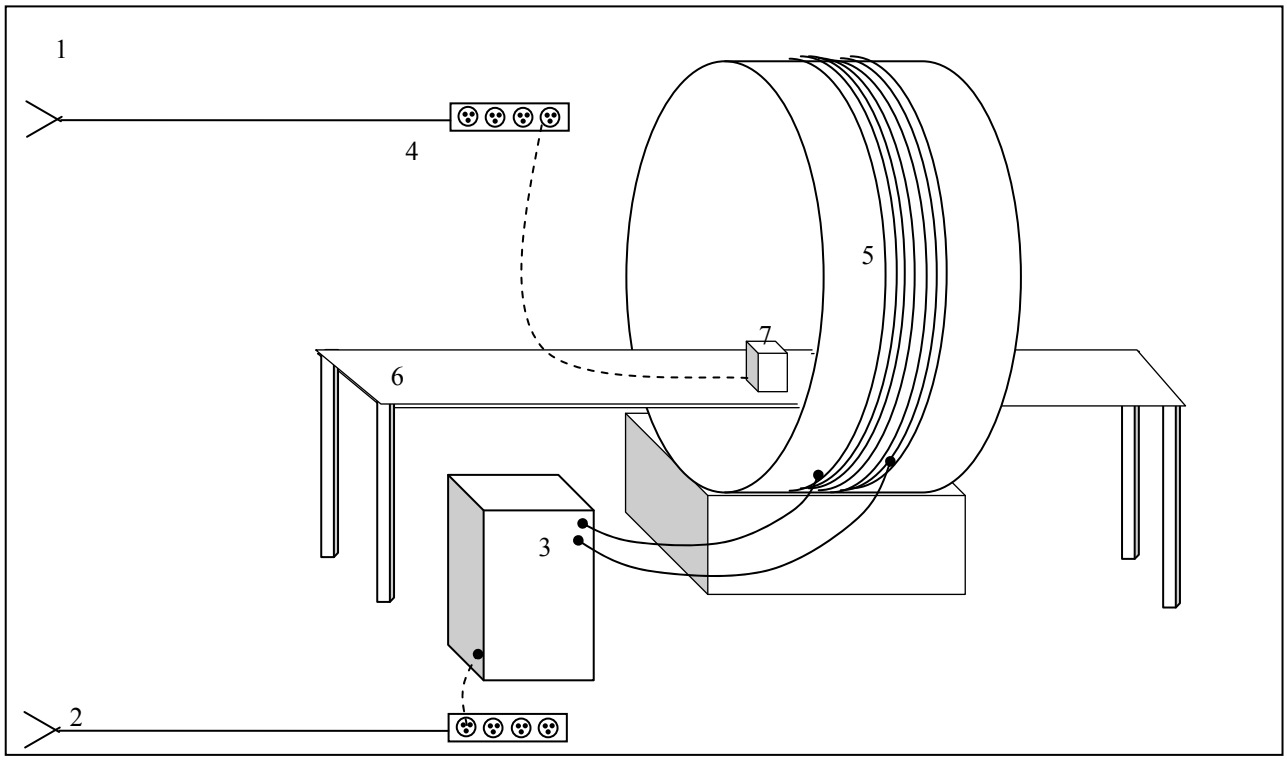
CONFIGURATION LEGEND

1. Test Laboratory
2. Mains power for EUT
3. Ground Plane
4. 10cm wooden Platform
5. Test Generator
6. Current Probe
7. Coupling/Decoupling Network
8. Coupling/Decoupling Network
9. EUT
10. Associated System

4.12. Power Frequency Magnetic Field Immunity: IEC 61000-4-8: 2009

This test subjects devices to the fields produced by current carrying conductors of standard building power. Testing was performed in accordance with IEC 61000-4-8.The standard configuration as outlined in IEC 61000-4-8 was used. For further information, please refer to the technical sections of IEC 61000-4-8 in addition to the test results section and photographs of the test set-up provided in this report.

Figure 9.Power Frequency Magnetic Field Immunity Test Setup



NOT TO SCALE

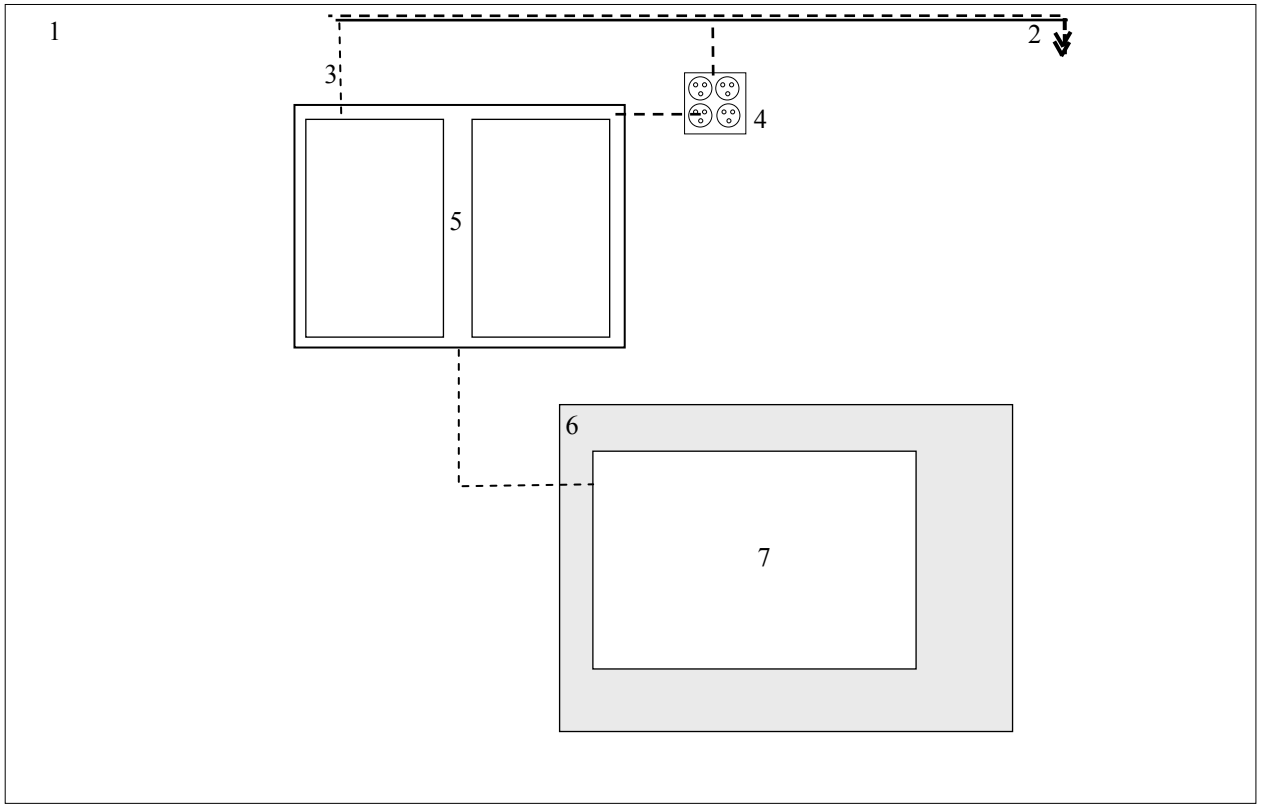
CONFIGURATION LEGEND

1. Test laboratory
2. AC Power for devices
3. AC Power Supply
4. Mains Power for EUT
5. Helmholtz Coil
6. Non-Conductive Table
7. EUT

4.13. Voltage Dips and Short Interruptions: IEC 61000-4-11: 2004

This test subjects the EUT to power network faults and "brownouts". Testing was performed in accordance with IEC 61000-4-11.The standard configuration as outlined in the IEC 61000-4-11 was used. The EUT is powered up to a nominal voltage of 230 VAC 50 Hz, and then software-controlled voltage dips and interruptions are introduced. For further information, please refer to the technical sections of the IEC 61000-4-11 in addition to the test results section and photographs of the test set-up provided in this report.

Figure 10. Voltage Dips and Short Interruptions Test Setup Diagram



NOT TO SCALE

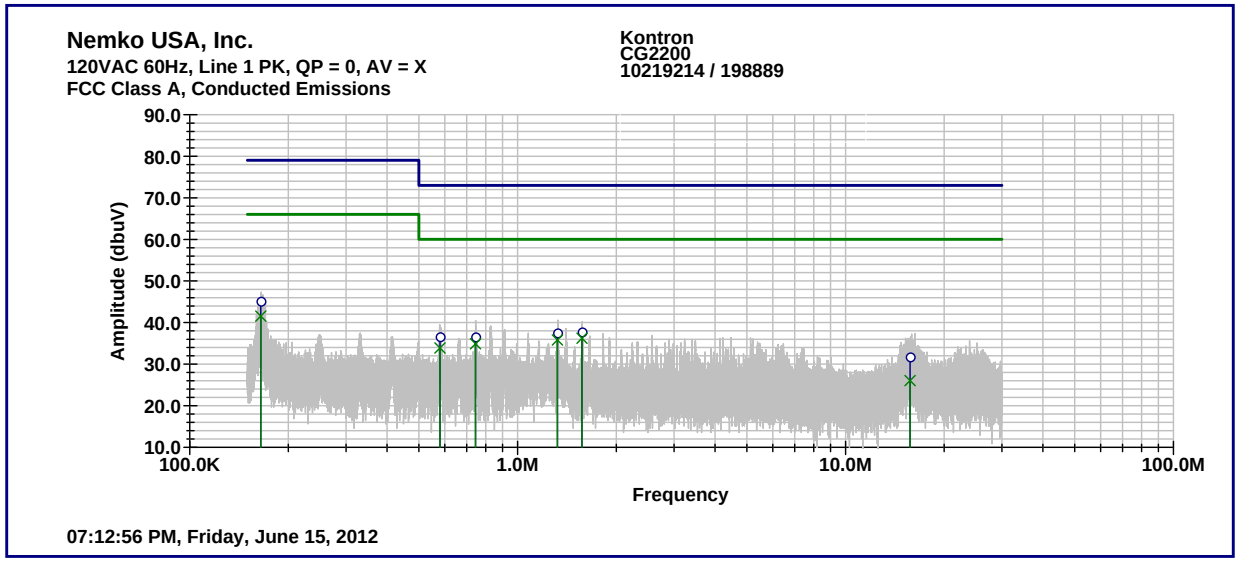
CONFIGURATION LEGEND

1. Test Laboratory (6 X 6 meters)
2. AC Power for Devices
3. 120/208VAC/60Hz Power for Harmonics/Flicker Test Equipment
4. 115V/60 Hz Power Distribution Box
5. Power Source Rack with Computer Analysis System
6. Non-conducting table
7. EUT and Associated System

5. FCC Test Results

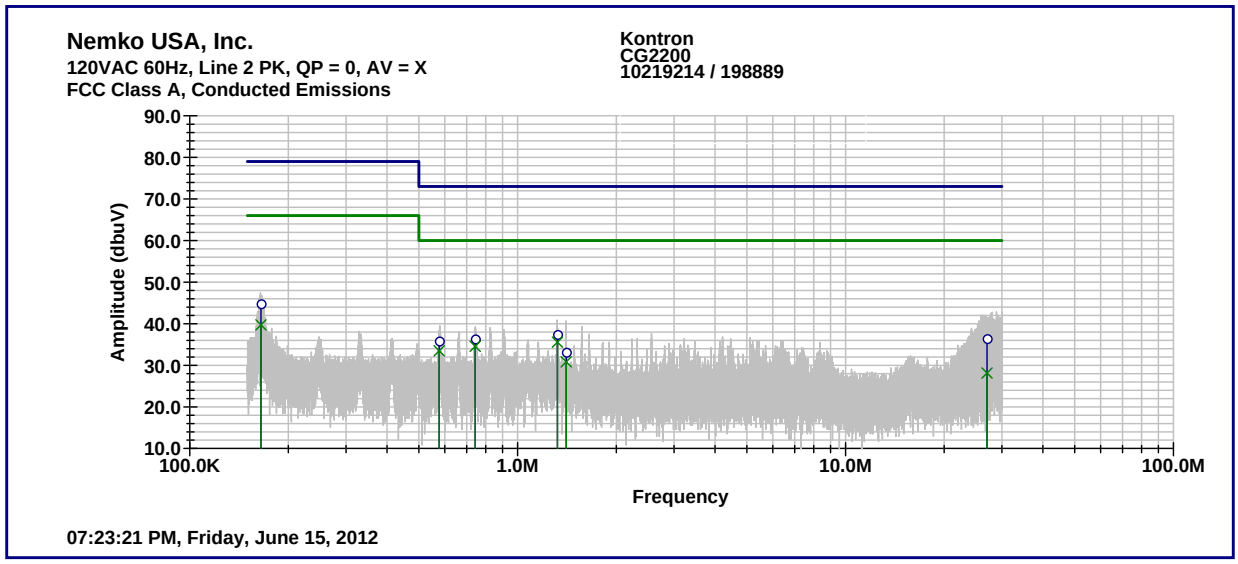
5.1. Conducted Emissions Test Data

Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	46	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.5	kPa
EUT Model	CG2200	Test Location	Test Area 3	
Governing Doc	CFR 47, Part 15B, Sec. 15.107	Test Engineer	Mark Phillips	
Basic Standard	ANSI C63.4	Date	6/15/12	
Voltage:	120 Vac Line 1 (PS1Worst Case Supply)			



Frequency	Measured		Limit		Margin	
(kHz)	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
164.7	45.2	41.5	79.0	66.0	-33.8	-24.5
579.6	36.6	33.9	73.0	60.0	-36.4	-26.1
744.3	36.6	34.9	73.0	60.0	-36.4	-25.1
1323.1	37.5	35.8	73.0	60.0	-35.5	-24.2
1571.6	37.8	36.2	73.0	60.0	-35.2	-23.8
15725.0	31.8	26.0	73.0	60.0	-41.2	-34.0

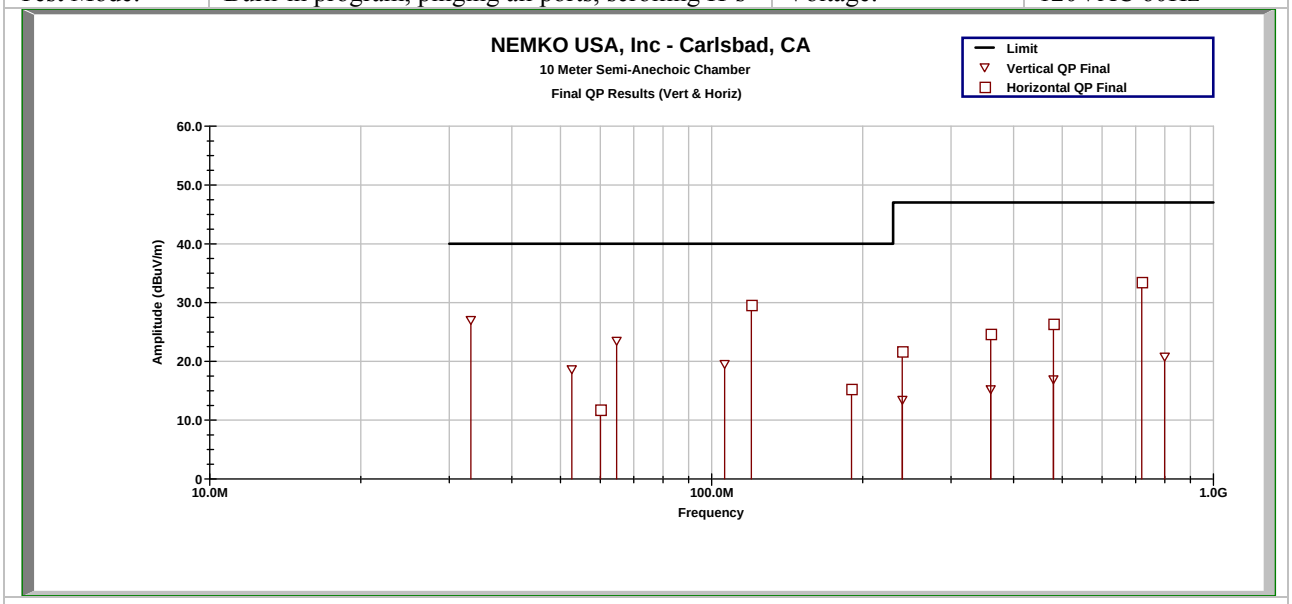
Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	46	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.5	kPa
EUT Model	CG2200	Test Location	Test Area 3	
Governing Doc	CFR 47, Part 15B, Sec. 15.107	Test Engineer	Mark Phillips	
Basic Standard	ANSI C63.4	Date	6/15/12	
Voltage:	120 Vac Line 2 (PS1Worst Case Supply)			



Frequency	Measured		Limit		Margin	
(kHz)	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
164.9	44.8	39.7	79.0	66.0	-34.2	-26.3
576.5	35.9	33.5	73.0	60.0	-37.1	-26.5
742.5	36.4	34.6	73.0	60.0	-36.6	-25.4
1322.5	37.5	35.6	73.0	60.0	-35.5	-24.4
1406.5	33.2	30.8	73.0	60.0	-39.8	-29.2
27016.7	36.5	28.1	73.0	60.0	-36.5	-31.9

5.2. Radiated Emissions Test Data

Radiated Emissions Graphical Data				
Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	48	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.3	kPa
EUT Model	CG2200	Test Location	Semi Anechoic Chamb	
Governing Doc	CFR 47, Part 15B, Sec. 15.109	Test Engineer	Mark Phillips	
Basic Standard	ANSI C63.4	Date	6/15/12	
Test Mode:	Burn-in program, pinging all ports, scrolling H's	Voltage:	120VAC 60Hz	



Radiated Emissions Tabular Data

Horizontal

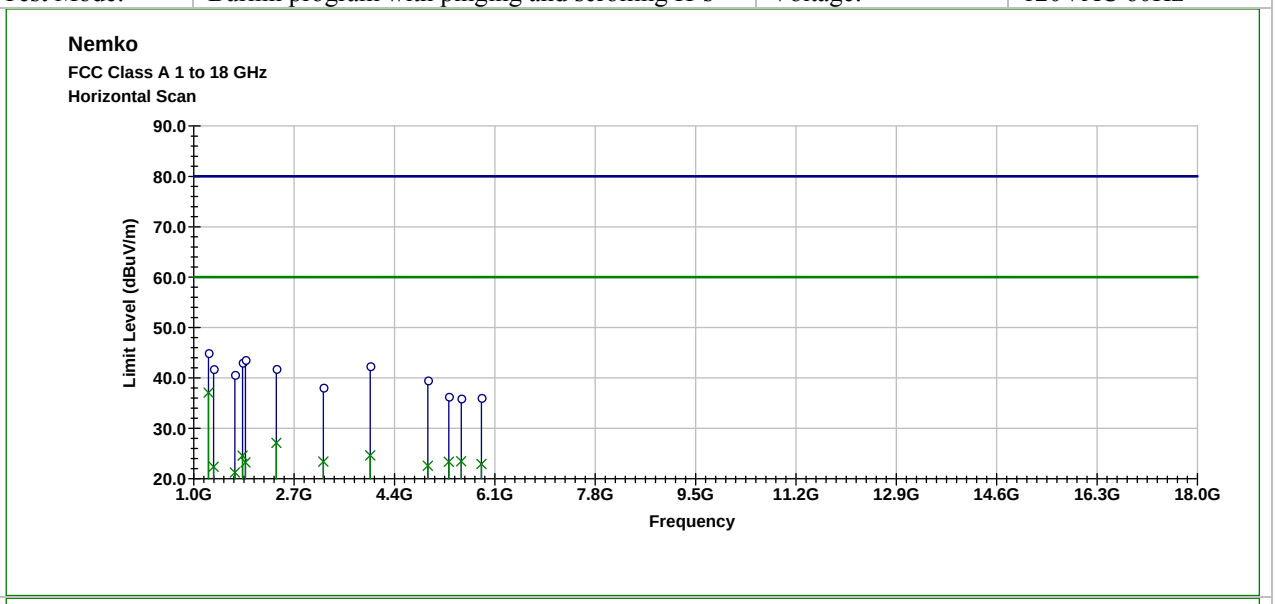
Measurement Frequency (MHz)	Meter Reading (dBµV)	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
60.059	31.5	360	372	11.8	40	-28.2	PASS	
120.018	44.8	360	389	29.6	40	-10.4	PASS	
189.976	28.3	360	389	15.3	40	-24.7	PASS	
239.957	39.9	0	362	21.7	47	-25.3	PASS	
359.997	38.5	359	250	24.7	47	-22.3	PASS	
479.979	37.7	38	388	26.4	47	-20.6	PASS	
720.010	41	118	160	33.5	47	-13.5	PASS	

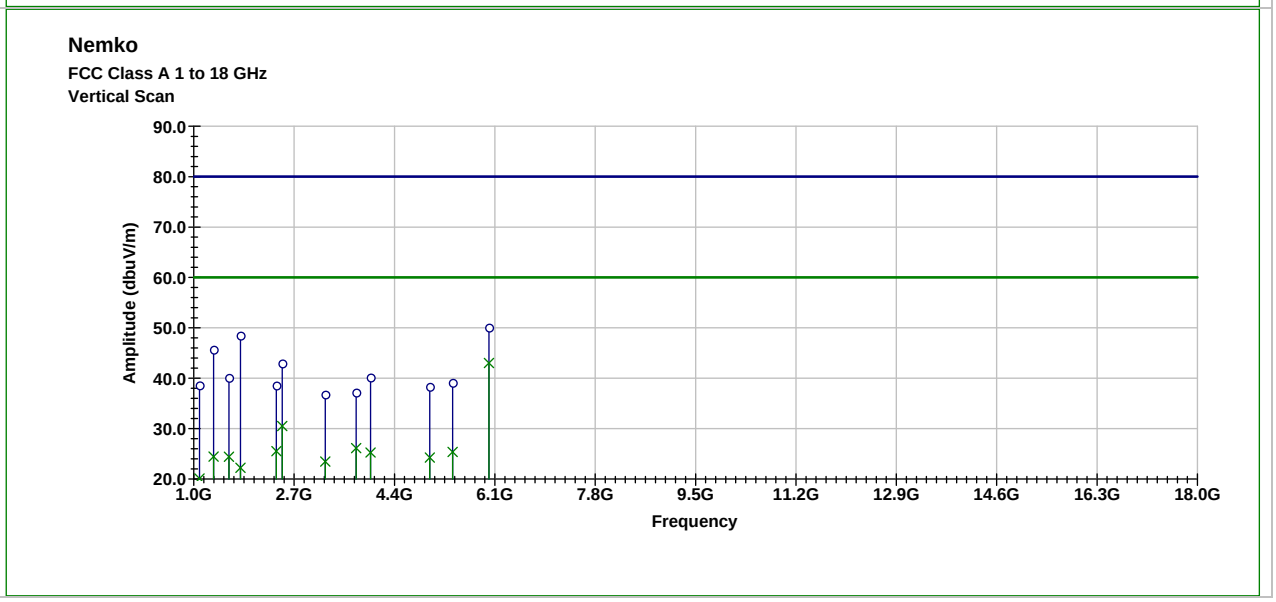
Vertical

Measurement Frequency (MHz)	Meter Reading (dBµV)	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
33.136	46.3	361	110	27	40	-13	PASS	
52.662	38.6	361	111	18.7	40	-21.3	PASS	
64.701	44.1	360	111	23.5	40	-16.5	PASS	
106.181	37	360	111	19.6	40	-20.4	PASS	
240.002	31.7	360	390	13.5	47	-33.5	PASS	
360.018	29.1	142	389	15.3	47	-31.7	PASS	
479.930	28.3	357	244	17	47	-30	PASS	
799.688	27.6	0	111	20.8	47	-26.2	PASS	

Radiated Emissions Graphical Data

Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	48	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.3	kPa
EUT Model	CG2200	Test Location	Semi Anechoic Chamb	
Governing Doc	CFR 47, Part 15B, Sec. 15.109	Test Engineer	Mark Phillips	
Basic Standard	ANSI C63.4	Date	6/15/12	
Test Mode:	Burnin program with pinging and scrolling H's	Voltage:	120VAC 60Hz	





Horizontal 1GHz to 18GHz

Measurement Frequency (MHz)	Meter Reading (dBµV)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
1250.1	37.1	37.1	60	-22.9	Pass	Average
1250.1	44.9	44.9	80	-35.1	Pass	Peak
1337.02	22.4	22.4	60	-37.6	Pass	Average
1337.02	41.8	41.8	80	-38.2	Pass	Peak
1696.69	21.2	21.2	60	-38.8	Pass	Average
1696.69	40.6	40.6	80	-39.4	Pass	Peak
1828.09	24.6	24.6	60	-35.4	Pass	Average
1828.09	43	43	80	-37	Pass	Peak
1876.36	23.2	23.2	60	-36.8	Pass	Average
1876.36	43.6	43.6	80	-36.4	Pass	Peak
2399.83	27.1	27.1	60	-32.9	Pass	Average
2399.83	41.8	41.8	80	-38.2	Pass	Peak
3194.8	23.4	23.4	60	-36.6	Pass	Average
3194.8	38.1	38.1	80	-41.9	Pass	Peak
3991.3	24.6	24.6	60	-35.4	Pass	Average
3991.3	42.3	42.3	80	-37.7	Pass	Peak
4965.7	22.6	22.6	60	-37.4	Pass	Average
4965.7	39.5	39.5	80	-40.5	Pass	Peak
5320.48	23.4	23.4	60	-36.6	Pass	Average
5320.48	36.3	36.3	80	-43.7	Pass	Peak
5529.73	23.4	23.4	60	-36.6	Pass	Average
5529.73	35.9	35.9	80	-44.1	Pass	Peak
5871.36	22.9	22.9	60	-37.1	Pass	Average
5871.36	36.1	36.1	80	-43.9	Pass	Peak

Vertical 1GHz to 18GHz

Measurement Frequency (MHz)	Meter Reading (dBµV)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
1098.58	34.6	20.1	60	-39.9	Pass	Average
1098.58	53.2	38.6	80	-41.4	Pass	Peak
1336.9	37.9	24.4	60	-35.6	Pass	Average
1336.9	59.2	45.7	80	-34.3	Pass	Peak
1597.81	37.6	24.4	60	-35.6	Pass	Average
1597.81	53.3	40.1	80	-39.9	Pass	Peak
1792.41	34.2	22.2	60	-37.8	Pass	Average
1792.41	60.5	48.5	80	-31.5	Pass	Peak
2399.67	35.6	25.5	60	-34.5	Pass	Average
2399.67	48.7	38.6	80	-41.4	Pass	Peak
2499.88	40.4	30.5	60	-29.5	Pass	Average
2499.88	52.8	43	80	-37	Pass	Peak
3227.09	30.7	23.5	60	-36.5	Pass	Average
3227.09	44	36.8	80	-43.2	Pass	Peak
3750.31	31.7	26.1	60	-33.9	Pass	Average
3750.31	42.7	37.1	80	-42.9	Pass	Peak
3995.73	30.3	25.2	60	-34.8	Pass	Average
3995.73	45.2	40.2	80	-39.8	Pass	Peak
4999.39	27.9	24.2	60	-35.8	Pass	Average
4999.39	42	38.3	80	-41.7	Pass	Peak
5384.81	27.5	25.4	60	-34.6	Pass	Average
5384.81	41.3	39.1	80	-40.9	Pass	Peak
5999.98	44.9	43	60	-17	Pass	Average
5999.98	51.9	50.1	80	-29.9	Pass	Peak

Calculation:

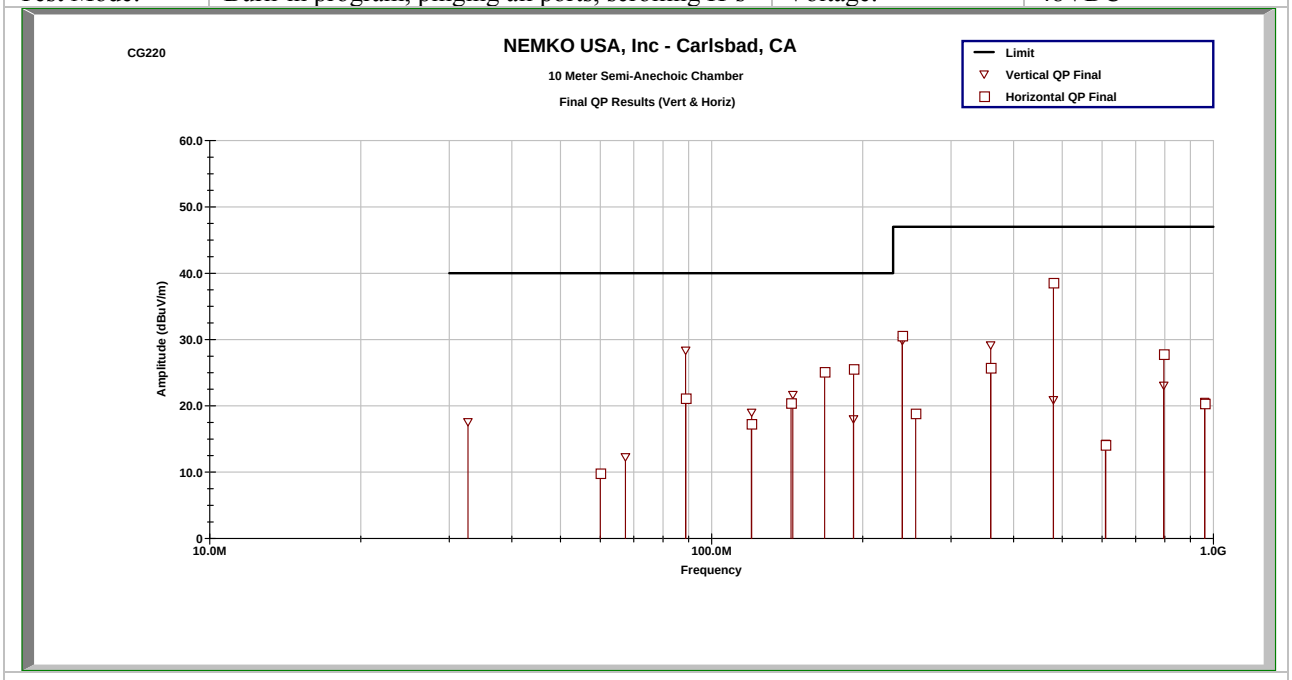
Meter Reading + antenna factor + cable loss – preamplifier = Corrected Reading
(Antenna factor, cable loss, preamplifier values are not listed.)

Corrected Reading – Spec. Limit = Margin
Negative Margin indicates passing emissions.

Meter Readings are Quasi-Peak maximum hold for turntable direction and antenna height.

Radiated Emissions Graphical Data

Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	48	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.3	kPa
EUT Model	CG2200	Test Location	Semi Anechoic Chamb	
Governing Doc	CFR 47, Part 15B, Sec. 15.109	Test Engineer	Mark Phillips	
Basic Standard	ANSI C63.4	Date	6/15/12	
Test Mode:	Burn-in program, pinging all ports, scrolling H's	Voltage:	48VDC	



Radiated Emissions Tabular Data

Horizontal

Measurement Frequency (MHz)	Meter Reading (dBµV)	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
60.033	29.6	11	111	9.8	40	-30.2	PASS	
88.822	42.7	278	176	21.1	40	-18.9	PASS	
120.031	32.5	58	111	17.3	40	-22.7	PASS	
144.019	38.3	11	364	20.4	40	-19.6	PASS	
168.019	39.4	355	389	25.1	40	-14.9	PASS	
191.963	38.6	31	388	25.6	40	-14.4	PASS	
239.972	48.8	11	390	30.6	47	-16.4	PASS	
255.097	36.1	11	389	18.8	47	-28.2	PASS	
360.029	39.6	12	293	25.7	47	-21.3	PASS	
479.984	49.9	72	242	38.6	47	-8.4	PASS	
609.502	23.8	11	111	14.1	47	-32.9	PASS	
796.453	34.6	227	111	27.8	47	-19.2	PASS	
961.447	22.4	349	111	20.4	47	-26.6	PASS	

Vertical

Measurement Frequency (MHz)	Meter Reading (dBµV)	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
32.691	36.7	357	111	17.6	40	-22.4	PASS	
67.345	33.7	355	111	12.3	40	-27.7	PASS	
88.791	49.9	62	110	28.4	40	-11.6	PASS	
120.226	34.3	11	112	19.0	40	-21.0	PASS	
145.249	39.4	11	111	21.7	40	-18.3	PASS	
191.756	31.1	11	111	18.0	40	-22.0	PASS	
239.992	48.0	3	331	29.8	47	-17.2	PASS	
360.035	43.1	132	346	29.2	47	-17.8	PASS	
479.993	32.3	11	389	20.9	47	-26.1	PASS	
610.121	24.0	11	389	14.3	47	-32.7	PASS	
796.403	29.9	11	389	23.1	47	-23.9	PASS	
960.840	22.7	11	389	20.7	47	-26.3	PASS	

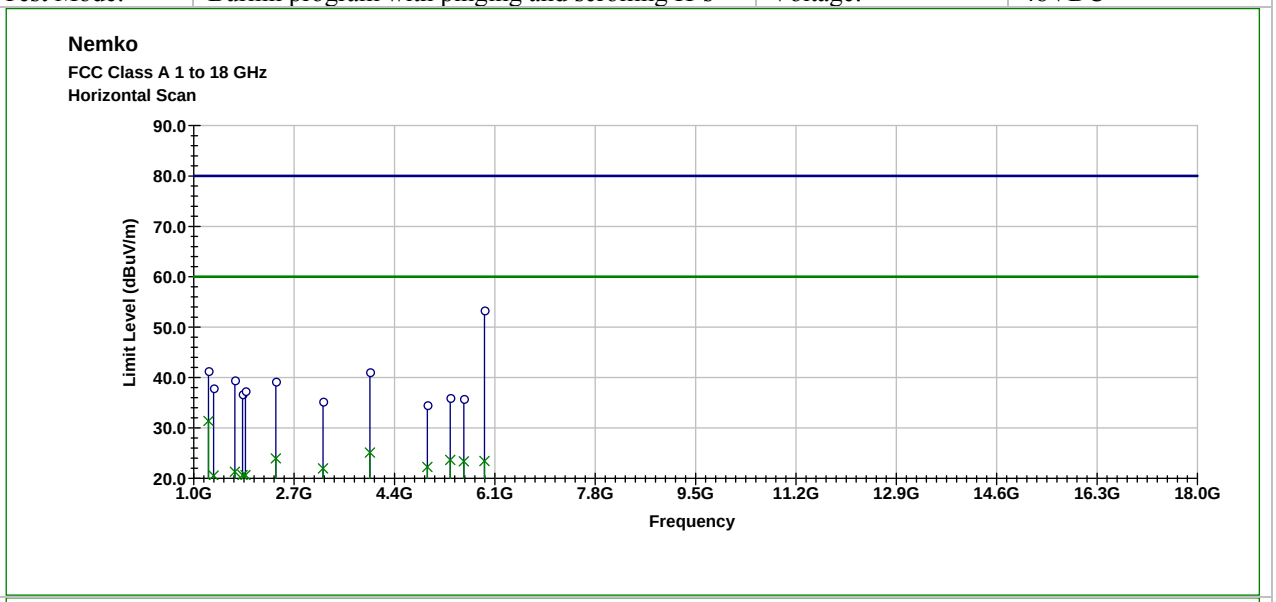
Calculation:

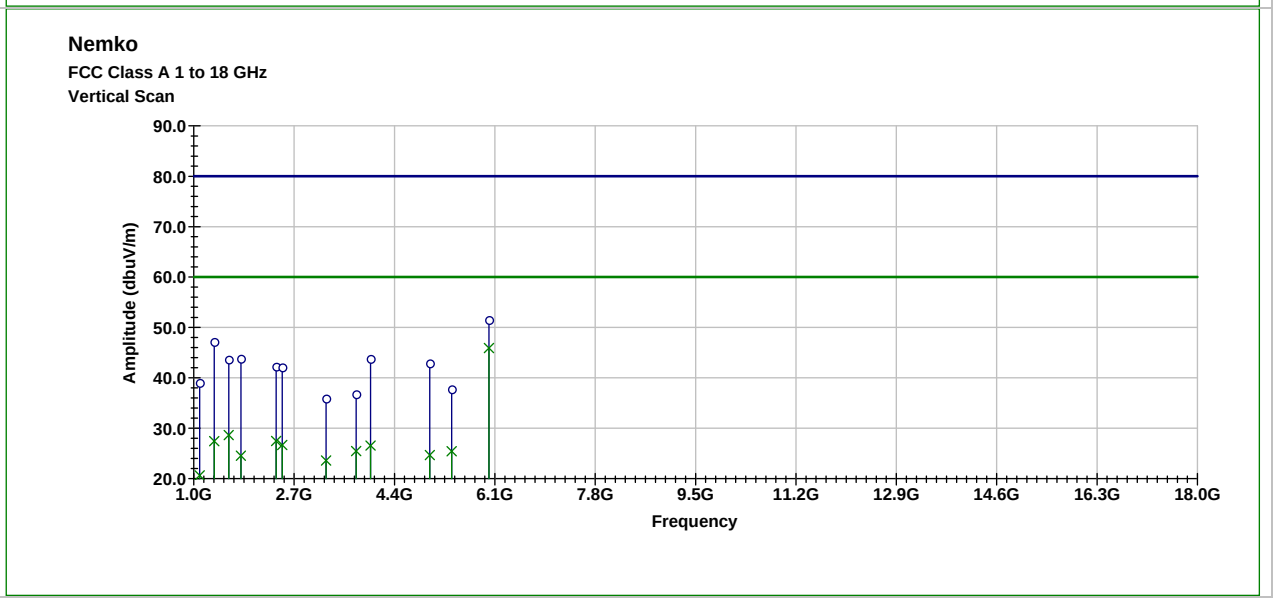
Meter Reading + antenna factor + cable loss – preamplifier = Corrected Reading
(Antenna factor, cable loss, preamplifier values are not listed.)
Corrected Reading – Spec. Limit = Margin
Negative Margin indicates passing emissions.

Meter Readings are Quasi-Peak maximum hold for turntable direction and antenna height.

Radiated Emissions Graphical Data

Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	48	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.3	kPa
EUT Model	CG2200	Test Location	Semi Anechoic Chamb	
Governing Doc	CFR 47, Part 15B, Sec. 15.109	Test Engineer	Mark Phillips	
Basic Standard	ANSI C63.4	Date	6/15/12	
Test Mode:	Burnin program with pinging and scrolling H's	Voltage:	48VDC	

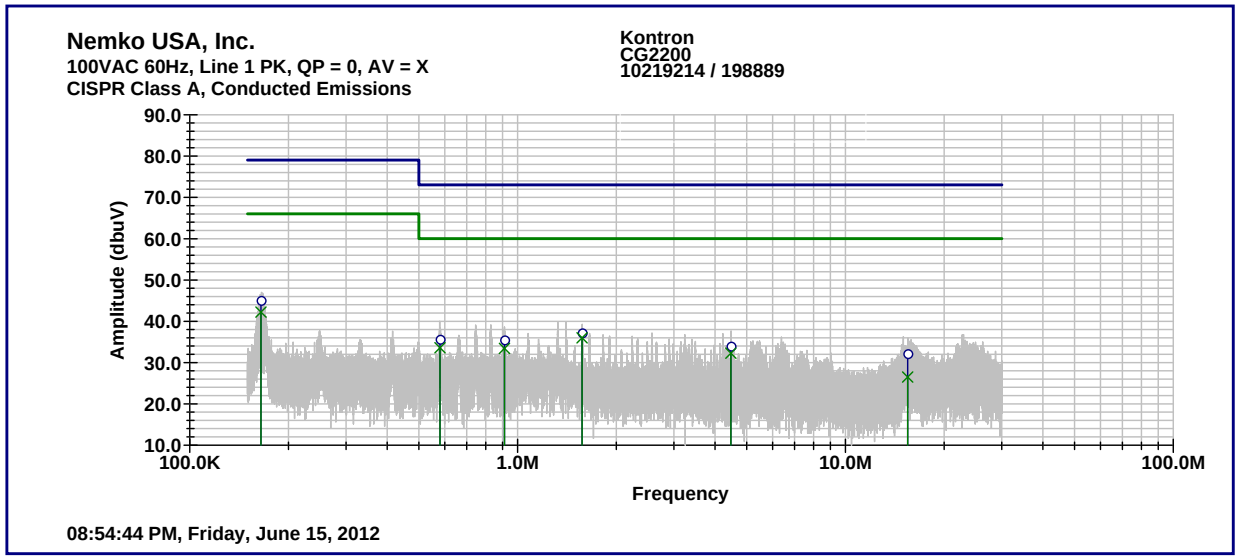




6. VCCI Test Results

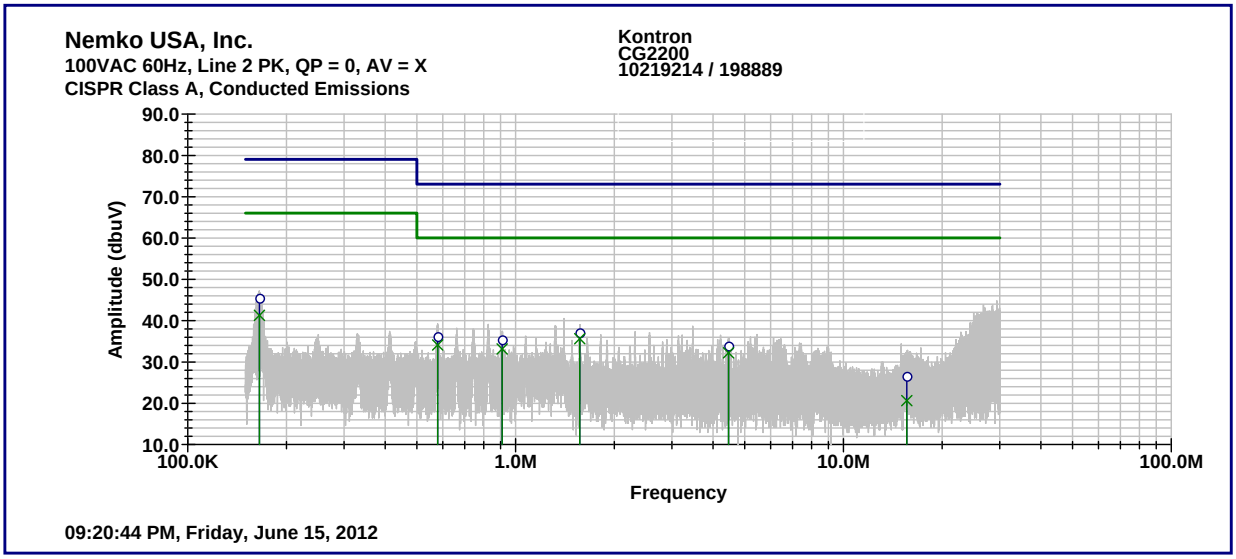
6.1. Conducted Emissions Test Data

Client	Kontron America, Inc.			Temperature	22 °C
NEx #:	198889			Relative Humidity	46 %
EUT Name	Carrier Grade Communication Rack Mount Server			Barometric Pressure	100.5 kPa
EUT Model	CG2200			Test Location	Test Area 3
Governing Doc	VCCI, V-3/2010.04, Normative Annex 1			Test Engineer	Mark Phillips
Basic Standard	CISPR 22	Site Registration:	C-4320		6/15/12
Voltage:	100 Vac, Line 1		(PS1Worst Case Supply)		



Frequency	Measured		Limit		Margin	
(kHz)	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
164.8	45.1	42.2	79.0	66.0	-33.9	-23.8
579.7	35.6	33.6	73.0	60.0	-37.4	-26.4
911.4	35.5	33.4	73.0	60.0	-37.5	-26.6
1571.9	37.2	36.0	73.0	60.0	-35.8	-24.0
4469.6	34.0	32.3	73.0	60.0	-39.0	-27.7
15476.0	32.2	26.5	73.0	60.0	-40.8	-33.5

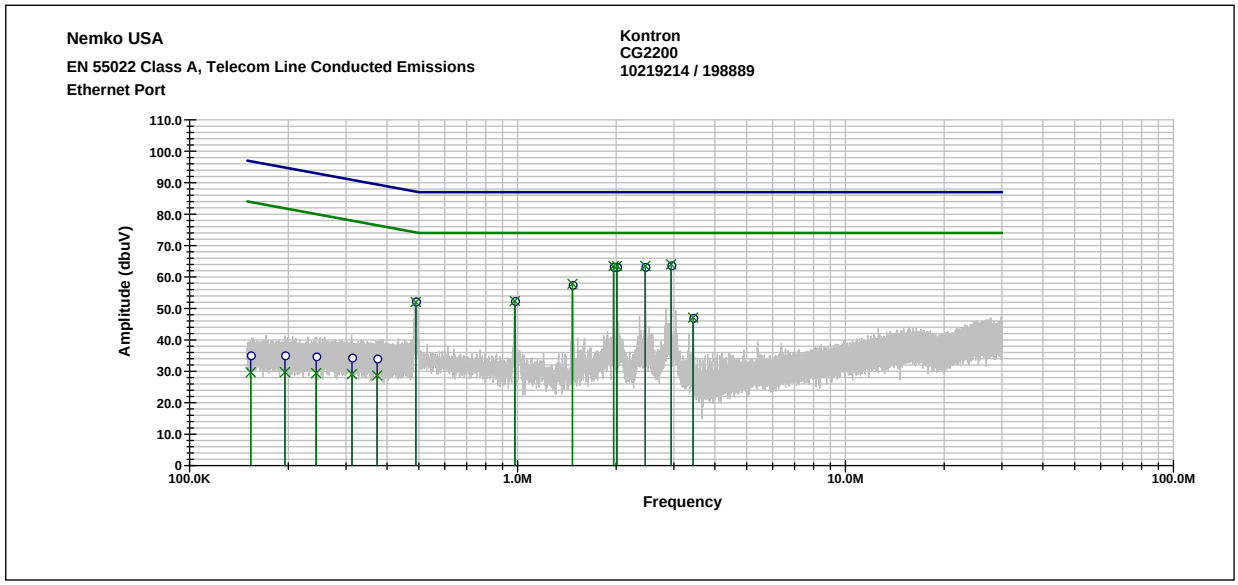
Client	Kontron America, Inc.			Temperature	22 °C
NEx #:	198889			Relative Humidity	46 %
EUT Name	Carrier Grade Communication Rack Mount Server			Barometric Pressure	100.5 kPa
EUT Model	CG2200			Test Location	Test Area 3
Governing Doc	VCCI, V-3/2010.04, Normative Annex 1			Test Engineer	Mark Phillips
Basic Standard	CISPR 22	Site Registration:	C-4320	Date	6/15/12
Voltage:	100 Vac, Line 2		(PS1Worst Case Supply)		



Frequency	Measured		Limit		Margin	
(kHz)	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
165.5	45.5	41.3	79.0	66.0	-33.5	-24.7
578.6	36.1	34.1	73.0	60.0	-36.9	-25.9
909.2	35.4	33.1	73.0	60.0	-37.6	-26.9
1567.9	37.1	35.6	73.0	60.0	-35.9	-24.4
4458.1	33.9	32.2	73.0	60.0	-39.1	-27.8
15587.1	26.5	20.6	73.0	60.0	-46.5	-39.4

6.2. Telecom Conducted Emissions Test Data

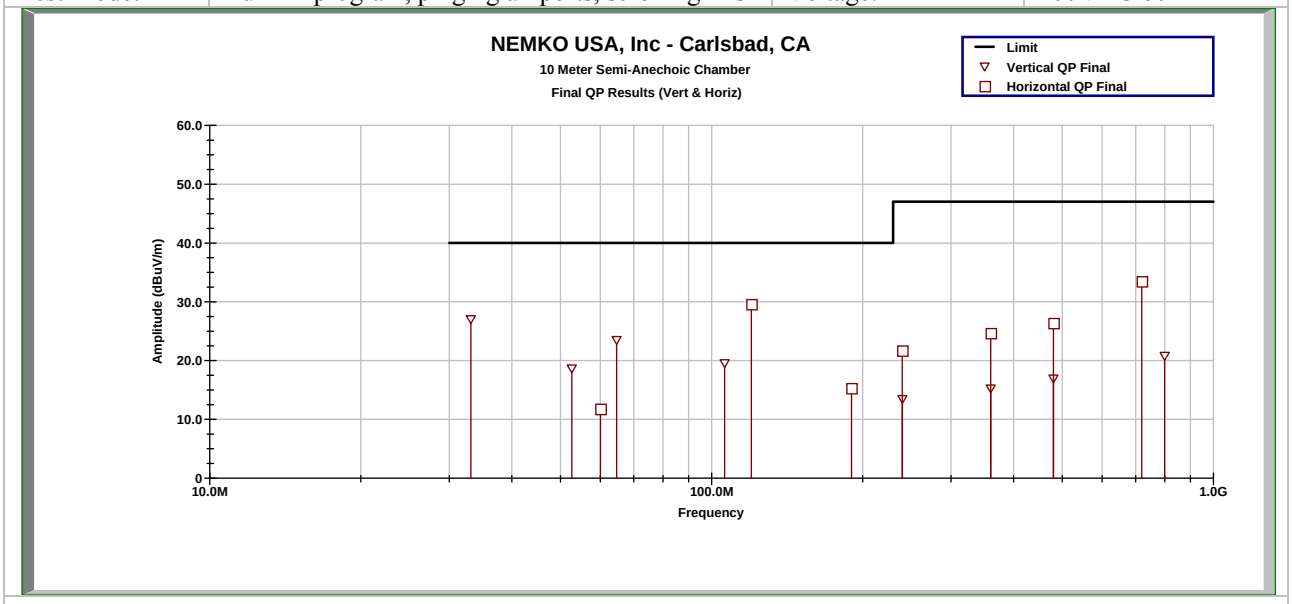
Client	Kontron America, Inc.			Temperature	22	°C
NEx #:	198889			Relative Humidity	46	%
EUT Name	Carrier Grade Communication Rack Mount Server			Barometric Pressure	100.5	kPa
EUT Model	CG2200			Test Location	Test Area 3	
Governing Doc	VCCI, V-3/2010.04, Normative Annex 1			Test Engineer	Mark Phillips	
Basic Standard	CISPR 22	Site Registration:	T-1315	Date	6/16/12	
Voltage:	100 Vac 60Hz		(Worst Case Port)			



Frequency	Measured		Limit		Margin	
(kHz)	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
153.6	35.1	29.7	96.8	83.8	-61.7	-54.1
195.4	35.1	29.7	94.8	81.8	-59.7	-52.1
243.4	34.8	29.4	93.0	80.0	-58.2	-50.6
313.0	34.4	29.1	90.9	77.9	-56.5	-48.8
373.1	34.1	28.6	89.4	76.4	-55.3	-47.8
489.6	52.2	52	87.2	74.2	-35.0	-22.2
981.0	52.4	52.3	87.0	74.0	-34.6	-21.7
1470.5	57.5	57.8	87.0	74.0	-29.5	-16.2
1962.2	63.2	63.5	87.0	74.0	-23.8	-10.5
2009.9	63.2	63.5	87.0	74.0	-23.8	-10.5
2452.3	63.3	63.5	87.0	74.0	-23.7	-10.5
2942.0	63.8	64	87.0	74.0	-23.2	-10.0
3433.6	47	47.1	87.0	74.0	-40.0	-26.9

6.3. Radiated Emissions Test Data

Radiated Emissions Graphical Data				
Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	48	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.3	kPa
EUT Model	CG2200	Test Location	Semi Anechoic Chamb	
Governing Doc	VCCI, V-3/2010.04, Normative Annex 1	Test Engineer	Mark Phillips	
Basic Standard	CISPR 22	Date	6/15/12	
Test Mode:	Burn-in program, pinging all ports, scrolling H's	Voltage:	100VAC 60Hz	



Radiated Emissions Tabular Data

Horizontal

Measurement Frequency (MHz)	Meter Reading (dBµV)	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
60.059	31.5	360	372	11.8	40	-28.2	PASS	
120.018	44.8	360	389	29.6	40	-10.4	PASS	
189.976	28.3	360	389	15.3	40	-24.7	PASS	
239.957	39.9	0	362	21.7	47	-25.3	PASS	
359.997	38.5	359	250	24.7	47	-22.3	PASS	
479.979	37.7	38	388	26.4	47	-20.6	PASS	
720.010	41	118	160	33.5	47	-13.5	PASS	

Vertical

Measurement Frequency (MHz)	Meter Reading (dBµV)	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
33.136	46.3	361	110	27	40	-13	PASS	
52.662	38.6	361	111	18.7	40	-21.3	PASS	
64.701	44.1	360	111	23.5	40	-16.5	PASS	
106.181	37	360	111	19.6	40	-20.4	PASS	
240.002	31.7	360	390	13.5	47	-33.5	PASS	
360.018	29.1	142	389	15.3	47	-31.7	PASS	
479.930	28.3	357	244	17	47	-30	PASS	
799.688	27.6	0	111	20.8	47	-26.2	PASS	

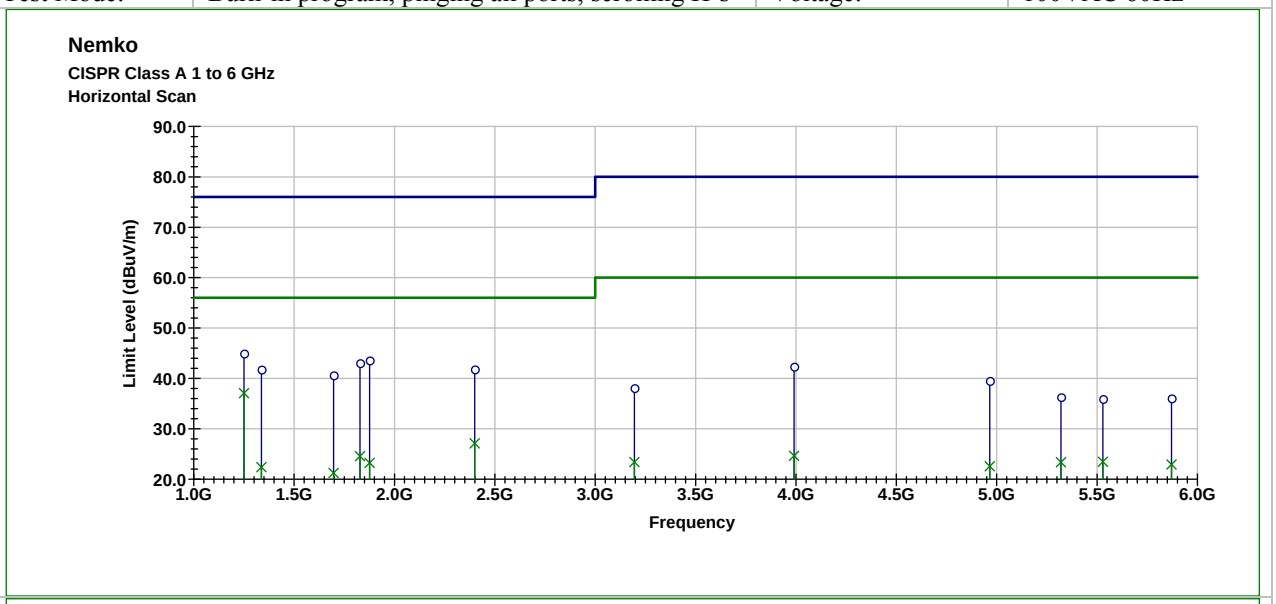
Calculation:

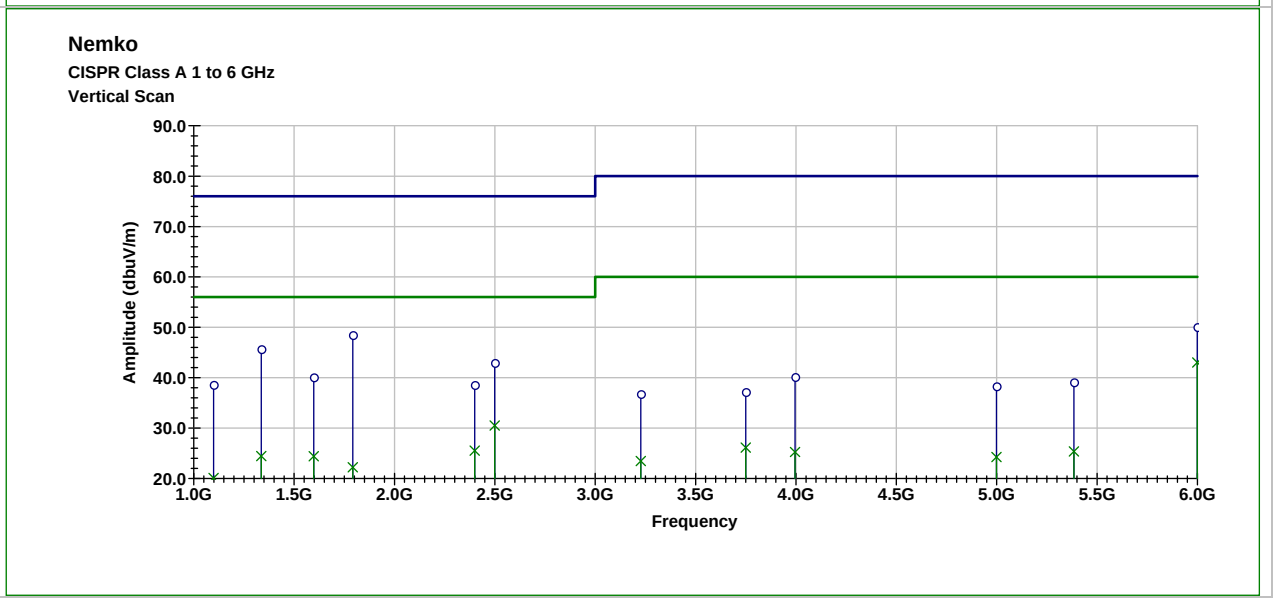
Meter Reading + antenna factor + cable loss – preamplifier = Corrected Reading
(Antenna factor, cable loss, preamplifier values are not listed.)
Corrected Reading – Spec. Limit = Margin
Negative Margin indicates passing emissions.

Meter Readings are Quasi-Peak maximum hold for turntable direction and antenna height.

Radiated Emissions Graphical Data

Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	48	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.3	kPa
EUT Model	CG2200	Test Location	Semi Anechoic Chamb	
Governing Doc	VCCI, V-3/2010.04, Normative Annex 1	Test Engineer	Mark Phillips	
Basic Standard	CISPR 22	Date	6/15/12	
Test Mode:	Burn-in program, pinging all ports, scrolling H's	Voltage:	100VAC 60Hz	





Radiated Emissions Tabular Data 1 – 6GHz

HORIZONTAL POLARIZATION

Measurement Frequency (MHz)	Meter Reading (dBµV)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
1250.10	37.1	37.1	54	-16.9	Pass	Average
1250.10	44.9	44.9	74	-29.1	Pass	Peak
1337.02	22.4	22.4	54	-31.6	Pass	Average
1337.02	41.8	41.8	74	-32.2	Pass	Peak
1696.69	21.2	21.2	54	-32.8	Pass	Average
1696.69	40.6	40.6	74	-33.4	Pass	Peak
1828.09	24.6	24.6	54	-29.4	Pass	Average
1828.09	43	43	74	-31	Pass	Peak
1876.36	23.2	23.2	54	-30.8	Pass	Average
1876.36	43.6	43.6	74	-30.4	Pass	Peak
2399.83	27.1	27.1	54	-26.9	Pass	Average
2399.83	41.8	41.8	74	-32.3	Pass	Peak
3194.80	23.4	23.4	60	-36.6	Pass	Average
3194.80	38.1	38.1	80	-41.9	Pass	Peak
3991.30	24.6	24.6	60	-35.4	Pass	Average
3991.30	42.3	42.3	80	-37.7	Pass	Peak
4965.70	22.6	22.6	60	-37.4	Pass	Average
4965.70	39.5	39.5	80	-40.5	Pass	Peak
5320.48	23.4	23.4	60	-36.6	Pass	Average
5320.48	36.3	36.3	80	-43.7	Pass	Peak
5529.73	23.4	23.4	60	-36.6	Pass	Average
5529.73	35.9	35.9	80	-44.1	Pass	Peak
5871.36	22.9	22.9	60	-37.1	Pass	Average
5871.36	36.1	36.1	80	-43.9	Pass	Peak

RADIATED EMISSIONS TABULAR DATA 1 – 6GHZ

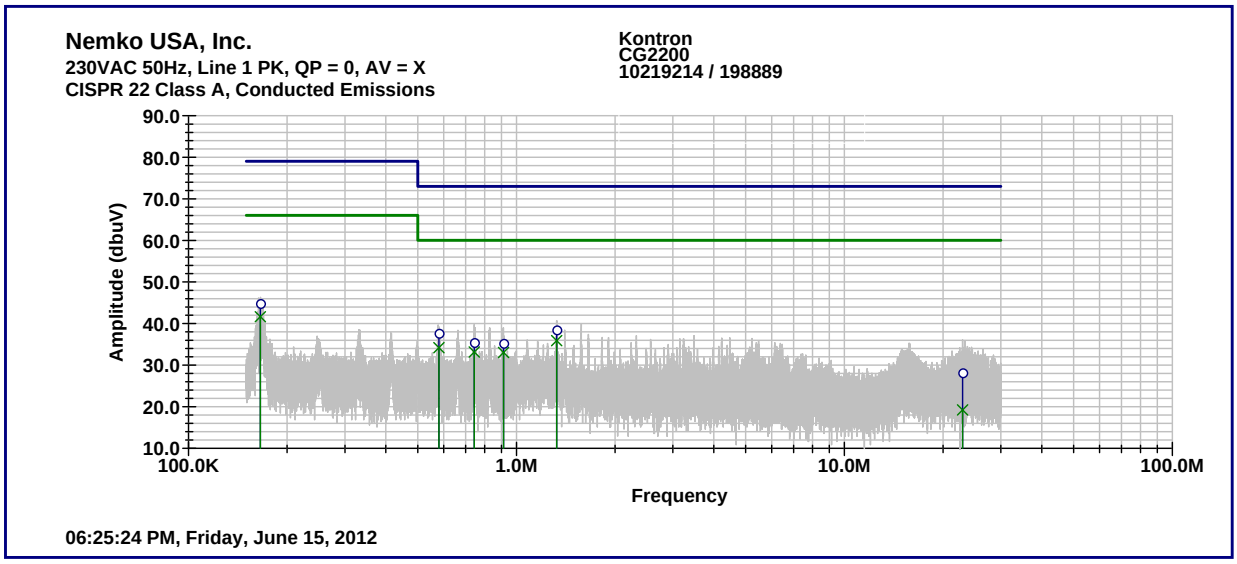
VERTICAL POLARIZATION

Measurement Frequency (MHz)	Meter Reading (dBµV)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
1098.58	34.6	20.1	54	-33.9	Pass	Average
1098.58	53.2	38.6	74	-35.4	Pass	Peak
1336.90	37.9	24.4	54	-29.6	Pass	Average
1336.90	59.2	45.7	74	-28.3	Pass	Peak
1597.81	37.6	24.4	54	-29.6	Pass	Average
1597.81	53.3	40.1	74	-33.9	Pass	Peak
1792.41	34.2	22.2	54	-31.8	Pass	Average
1792.41	60.5	48.5	74	-25.5	Pass	Peak
2399.67	35.6	25.5	54	-28.5	Pass	Average
2399.67	48.7	38.6	74	-35.4	Pass	Peak
2499.88	40.4	30.5	54	-23.5	Pass	Average
2499.88	52.8	43	74	-31	Pass	Peak
3227.09	30.7	23.5	60	-36.5	Pass	Average
3227.09	44	36.8	80	-43.2	Pass	Peak
3750.31	31.7	26.1	60	-33.9	Pass	Average
3750.31	42.7	37.1	80	-42.9	Pass	Peak
3995.73	30.3	25.2	60	-34.8	Pass	Average
3995.73	45.2	40.2	80	-39.8	Pass	Peak
4999.39	27.9	24.2	60	-35.8	Pass	Average
4999.39	42	38.3	80	-41.7	Pass	Peak
5384.81	27.5	25.4	60	-34.6	Pass	Average
5384.81	41.3	39.1	80	-40.9	Pass	Peak
5999.98	44.9	43	60	-17	Pass	Average
5999.98	51.9	50.1	80	-29.9	Pass	Peak

7. AS/NZS Test Results

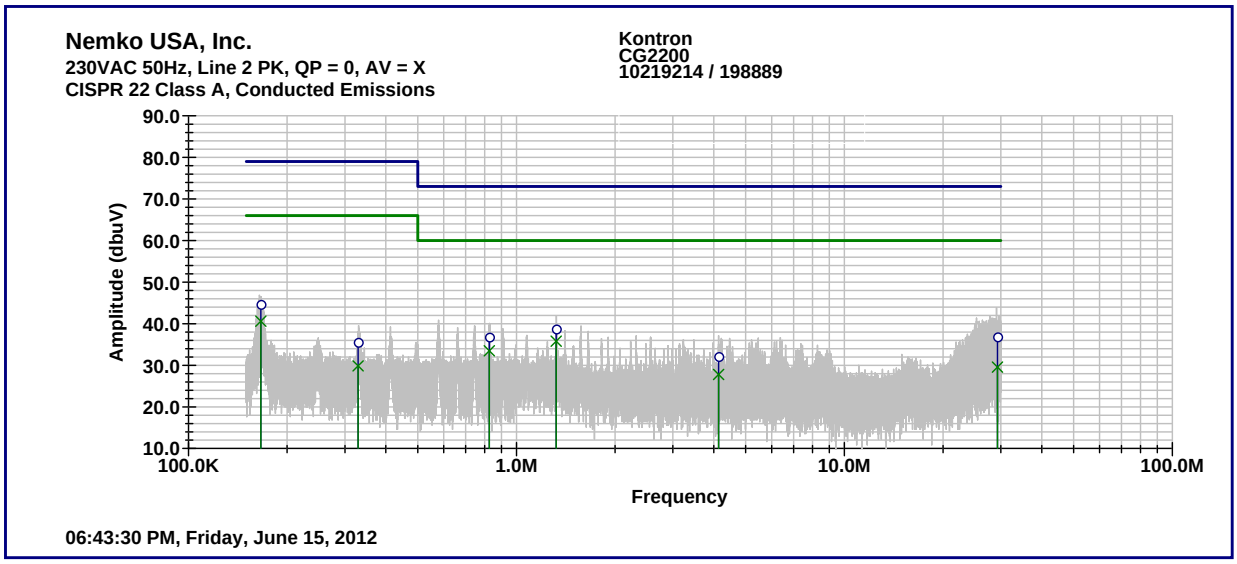
7.1. Conducted Emissions Test Data

Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	46	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.5	kPa
EUT Model	CG2200	Test Location	Test Area 3	
Governing Doc	AS/NZS CISPR 22	Test Engineer	Mark Phillips	
Basic Standard	CISPR 22	Date	6/15/12	
Voltage:	230 Vac, Line 1 (PS1 Worst Case Supply)			



Frequency	Measured		Limit		Margin	
(kHz)	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
165.7	44.8	41.6	79.0	66.0	-34.2	-24.4
580.4	37.7	34.2	73.0	60.0	-35.3	-25.8
743.9	35.5	33.2	73.0	60.0	-37.5	-26.8
913.4	35.3	33.0	73.0	60.0	-37.7	-27.0
1327.0	38.5	35.9	73.0	60.0	-34.5	-24.1
22930.1	28.2	19.2	73.0	60.0	-44.8	-40.8

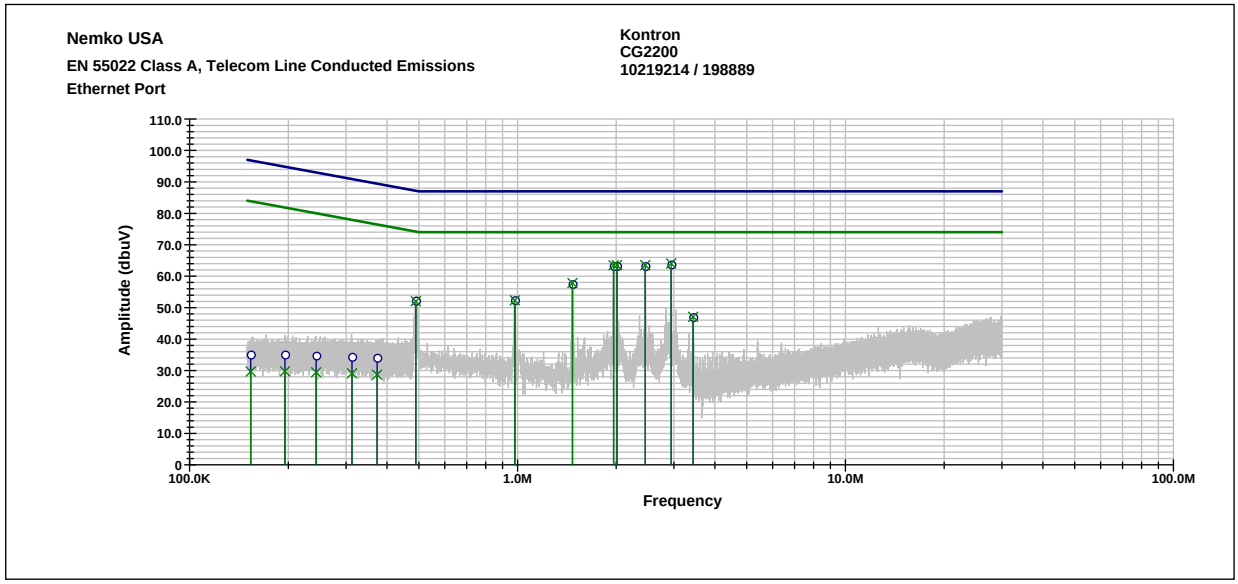
Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	46	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.5	kPa
EUT Model	CG2200	Test Location	Test Area 3	
Governing Doc	AS/NZS CISPR 22	Test Engineer	Mark Phillips	
Basic Standard	CISPR 22	Date	6/15/12	
Voltage:	230 Vac, Line 2 (PS1 Worst Case Supply)			



Frequency	Measured		Limit		Margin	
(kHz)	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
166.2	44.7	40.6	79.0	66.0	-34.3	-25.4
329.2	35.6	29.8	79.0	66.0	-43.4	-36.2
826.3	36.8	33.5	73.0	60.0	-36.2	-26.5
1321.5	38.7	35.8	73.0	60.0	-34.3	-24.2
4136.1	32.1	27.8	73.0	60.0	-40.9	-32.2
29301.2	36.9	29.6	73.0	60.0	-36.1	-30.4

7.2. Telecom Conducted Emissions Test Data

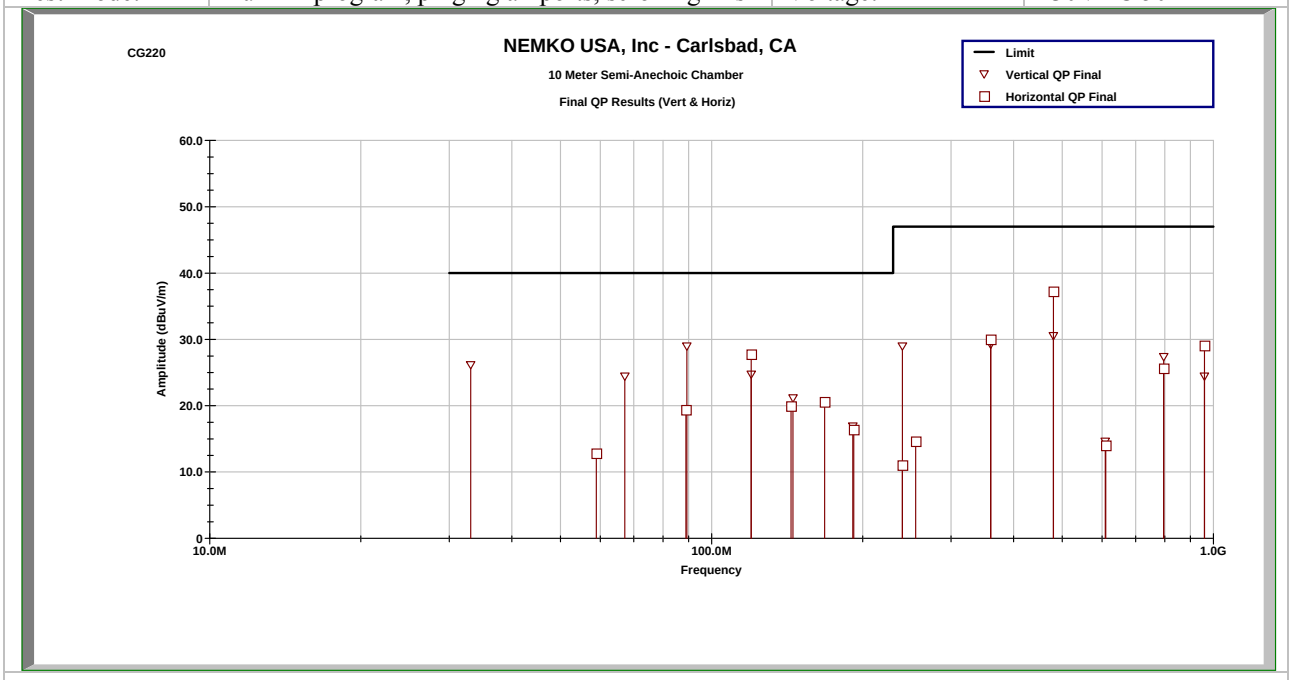
Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	46	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.5	kPa
EUT Model	CG2200	Test Location	Test Area 3	
Governing Doc	AS/NZS CISPR 22	Test Engineer	Mark Phillips	
Basic Standard	CISPR 22	Date	6/16/12	
Voltage:	230 Vac 50Hz	(Worst Case Port)		



Frequency	Measured		Limit		Margin	
(kHz)	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
153.6	35.1	29.7	96.8	83.8	-61.7	-54.1
195.4	35.1	29.7	94.8	81.8	-59.7	-52.1
243.4	34.8	29.4	93.0	80.0	-58.2	-50.6
313.0	34.4	29.1	90.9	77.9	-56.5	-48.8
373.1	34.1	28.6	89.4	76.4	-55.3	-47.8
489.6	52.2	52	87.2	74.2	-35.0	-22.2
981.0	52.4	52.3	87.0	74.0	-34.6	-21.7
1470.5	57.5	57.8	87.0	74.0	-29.5	-16.2
1962.2	63.2	63.5	87.0	74.0	-23.8	-10.5
2009.9	63.2	63.5	87.0	74.0	-23.8	-10.5
2452.3	63.3	63.5	87.0	74.0	-23.7	-10.5
2942.0	63.8	64	87.0	74.0	-23.2	-10.0
3433.6	47	47.1	87.0	74.0	-40.0	-26.9

7.3. Radiated Emissions Test Data

Radiated Emissions Graphical Data				
Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	48	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.3	kPa
EUT Model	CG2200	Test Location	Location	
Governing Doc	AS/NZS CISPR 22	Test Engineer	Test Engineer	
Basic Standard	CISPR 22	Date	6/15/12	
Test Mode:	Burn-in program, pinging all ports, scrolling H's	Voltage:	230VAC 50Hz	



Radiated Emissions Tabular Data

Horizontal

Measurement Frequency (MHz)	Meter Reading (dBµV)	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
58.934	32.6	0	211	12.8	40	-27.2	PASS	
88.894	40.9	296	111	19.4	40	-20.6	PASS	
120.007	42.9	351	348	27.7	40	-12.3	PASS	
144.017	37.8	358	389	19.9	40	-20.1	PASS	
168.009	34.8	361	389	20.6	40	-19.4	PASS	
192.020	29.5	361	389	16.4	40	-23.6	PASS	
240.005	29.2	9	112	11.0	47	-36.0	PASS	
255.186	31.9	3	282	14.6	47	-32.4	PASS	
360.029	43.9	76	389	30.0	47	-17.0	PASS	
479.976	48.6	186	214	37.2	47	-9.8	PASS	
610.591	23.6	10	112	14.0	47	-33.0	PASS	
796.419	32.4	220	111	25.6	47	-21.4	PASS	
959.980	31.0	351	111	29.1	47	-17.9	PASS	

Vertical

Measurement Frequency (MHz)	Meter Reading (dBµV)	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
33.105	45.4	0	111	26.2	40	-13.8	PASS	
67.167	45.8	0	110	24.4	40	-15.6	PASS	
89.282	50.4	1	111	29.0	40	-11.0	PASS	
120.004	39.9	118	111	24.7	40	-15.3	PASS	
145.253	38.9	11	111	21.2	40	-18.8	PASS	
191.177	30.0	4	111	16.9	40	-23.1	PASS	
240.007	47.2	361	280	29.0	47	-18.0	PASS	
360.028	43.1	360	105	29.2	47	-17.8	PASS	
480.010	41.9	142	361	30.6	47	-16.4	PASS	
608.804	24.3	9	389	14.6	47	-32.4	PASS	
796.365	34.1	2	216	27.4	47	-19.6	PASS	
959.978	26.4	87	111	24.4	47	-22.6	PASS	

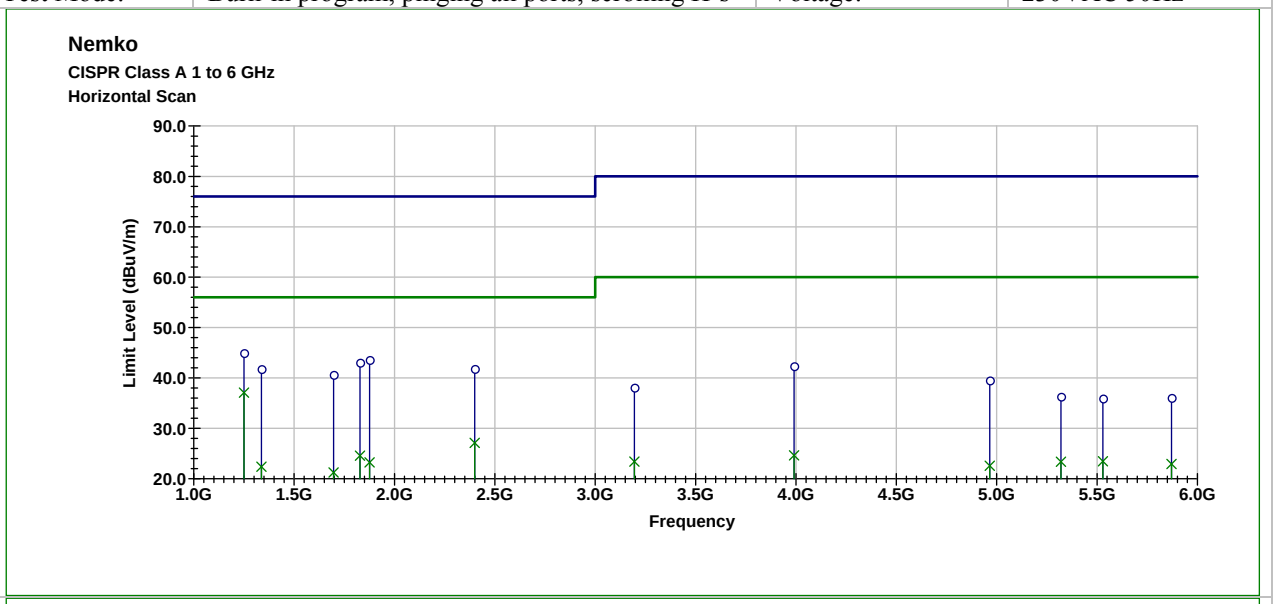
Calculation:

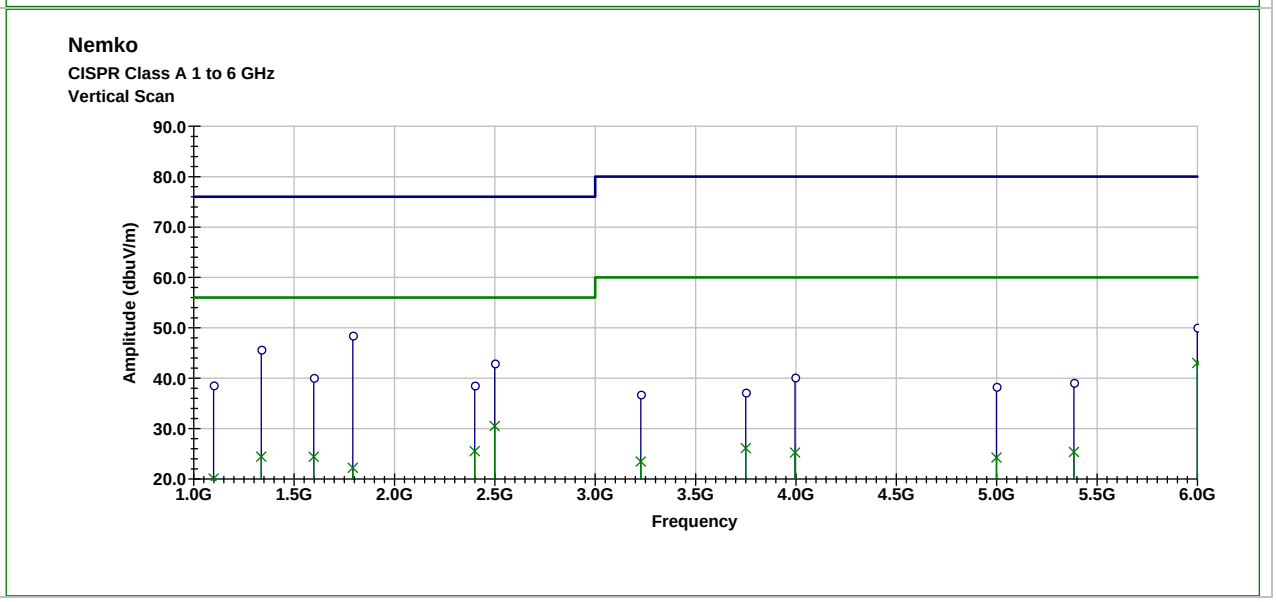
Meter Reading + antenna factor + cable loss – preamplifier = Corrected Reading
(Antenna factor, cable loss, preamplifier values are not listed.)
Corrected Reading – Spec. Limit = Margin
Negative Margin indicates passing emissions.

Meter Readings are Quasi-Peak maximum hold for turntable direction and antenna height.

Radiated Emissions Graphical Data

Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	48	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.3	kPa
EUT Model	CG2200	Test Location	Semi Anechoic Chamb	
Governing Doc	AS/NZS CISPR 22	Test Engineer	Mark Phillips	
Basic Standard	CISPR 22	Date	6/15/12	
Test Mode:	Burn-in program, pinging all ports, scrolling H's	Voltage:	230VAC 50Hz	





Radiated Emissions Tabular Data 1 – 6GHz

HORIZONTAL POLARIZATION

Measurement Frequency (MHz)	Meter Reading (dBµV)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
1250.10	37.1	37.1	54	-16.9	Pass	Average
1250.10	44.9	44.9	74	-29.1	Pass	Peak
1337.02	22.4	22.4	54	-31.6	Pass	Average
1337.02	41.8	41.8	74	-32.2	Pass	Peak
1696.69	21.2	21.2	54	-32.8	Pass	Average
1696.69	40.6	40.6	74	-33.4	Pass	Peak
1828.09	24.6	24.6	54	-29.4	Pass	Average
1828.09	43	43	74	-31	Pass	Peak
1876.36	23.2	23.2	54	-30.8	Pass	Average
1876.36	43.6	43.6	74	-30.4	Pass	Peak
2399.83	27.1	27.1	54	-26.9	Pass	Average
2399.83	41.8	41.8	74	-32.3	Pass	Peak
3194.80	23.4	23.4	60	-36.6	Pass	Average
3194.80	38.1	38.1	80	-41.9	Pass	Peak
3991.30	24.6	24.6	60	-35.4	Pass	Average
3991.30	42.3	42.3	80	-37.7	Pass	Peak
4965.70	22.6	22.6	60	-37.4	Pass	Average
4965.70	39.5	39.5	80	-40.5	Pass	Peak
5320.48	23.4	23.4	60	-36.6	Pass	Average
5320.48	36.3	36.3	80	-43.7	Pass	Peak
5529.73	23.4	23.4	60	-36.6	Pass	Average
5529.73	35.9	35.9	80	-44.1	Pass	Peak
5871.36	22.9	22.9	60	-37.1	Pass	Average
5871.36	36.1	36.1	80	-43.9	Pass	Peak

RADIATED EMISSIONS TABULAR DATA 1 – 6GHZ

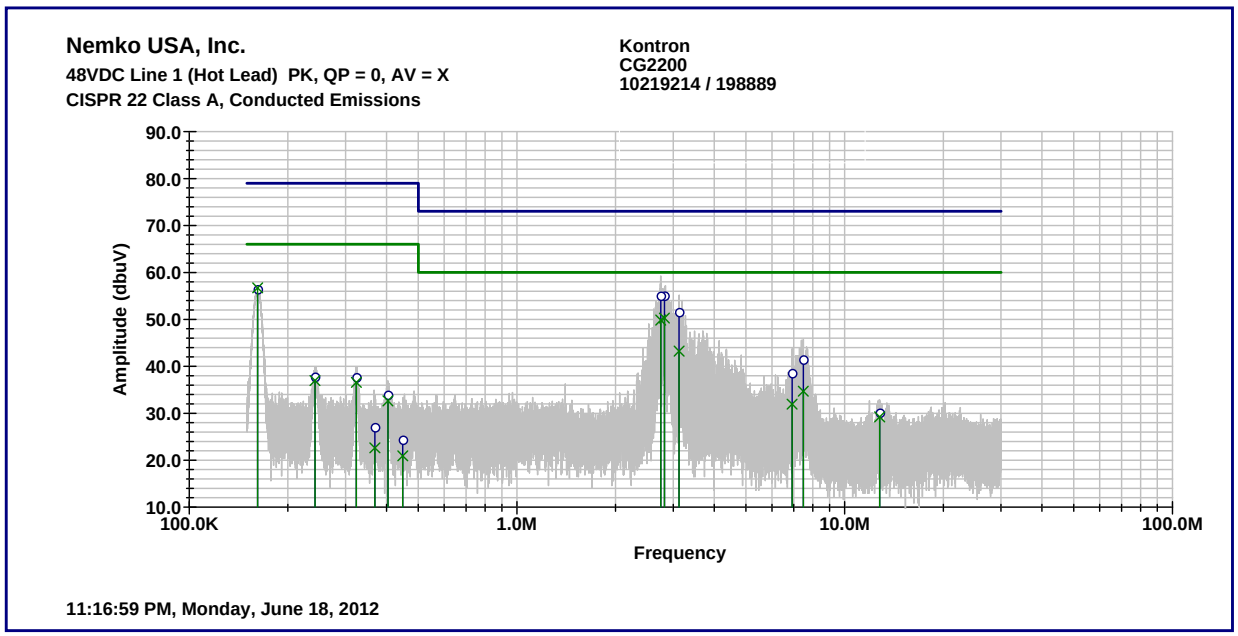
VERTICAL POLARIZATION

Measurement Frequency (MHz)	Meter Reading (dBµV)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
1098.58	34.6	20.1	54	-33.9	Pass	Average
1098.58	53.2	38.6	74	-35.4	Pass	Peak
1336.90	37.9	24.4	54	-29.6	Pass	Average
1336.90	59.2	45.7	74	-28.3	Pass	Peak
1597.81	37.6	24.4	54	-29.6	Pass	Average
1597.81	53.3	40.1	74	-33.9	Pass	Peak
1792.41	34.2	22.2	54	-31.8	Pass	Average
1792.41	60.5	48.5	74	-25.5	Pass	Peak
2399.67	35.6	25.5	54	-28.5	Pass	Average
2399.67	48.7	38.6	74	-35.4	Pass	Peak
2499.88	40.4	30.5	54	-23.5	Pass	Average
2499.88	52.8	43	74	-31	Pass	Peak
3227.09	30.7	23.5	60	-36.5	Pass	Average
3227.09	44	36.8	80	-43.2	Pass	Peak
3750.31	31.7	26.1	60	-33.9	Pass	Average
3750.31	42.7	37.1	80	-42.9	Pass	Peak
3995.73	30.3	25.2	60	-34.8	Pass	Average
3995.73	45.2	40.2	80	-39.8	Pass	Peak
4999.39	27.9	24.2	60	-35.8	Pass	Average
4999.39	42	38.3	80	-41.7	Pass	Peak
5384.81	27.5	25.4	60	-34.6	Pass	Average
5384.81	41.3	39.1	80	-40.9	Pass	Peak
5999.98	44.9	43	60	-17	Pass	Average
5999.98	51.9	50.1	80	-29.9	Pass	Peak

8. DC Input Power Test Results

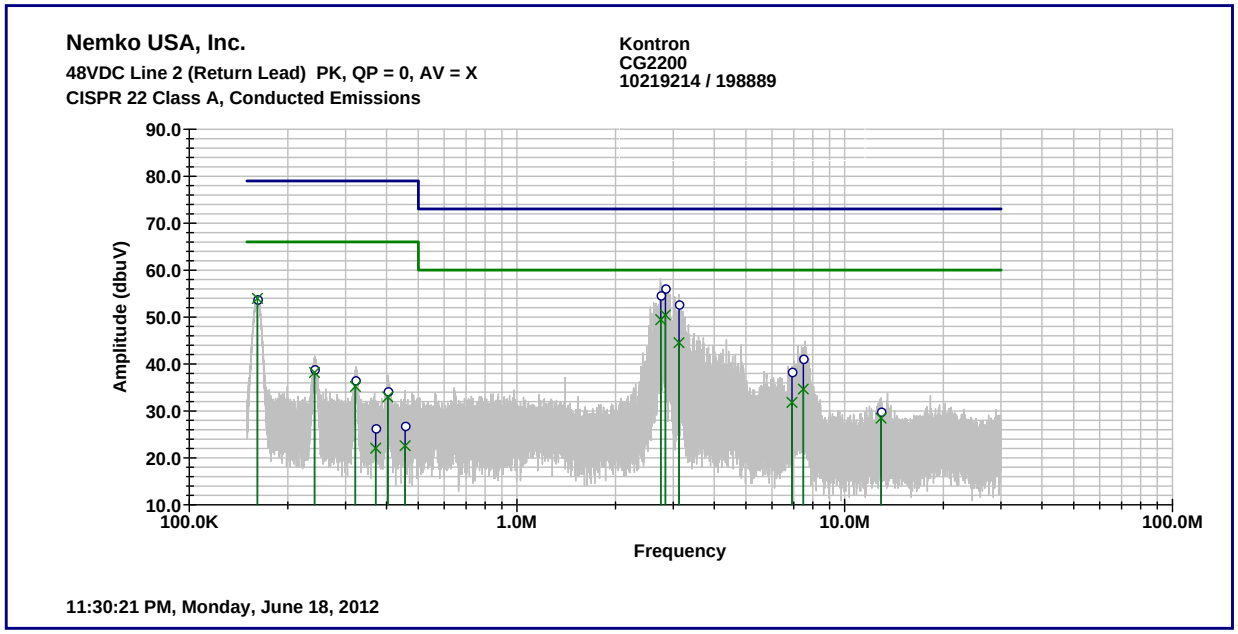
8.1. Conducted Emissions Test Data

Client	Kontron America, Inc.	Temperature	21	°C
NEx #:	198889	Relative Humidity	49	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.5	kPa
EUT Model	CG2200	Test Location	Test Area 1	
Governing Doc	EN 55022	Test Engineer	Mark Phillips	
Basic Standard	CISPR 22	Date	6/18/12	
Voltage:	48VDC Hot Lead (Worst Case Supply PS1)			



Frequency	Measured		Limit		Margin	
(kHz)	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
161.8	56.4	56.7	79.0	66.0	-22.6	-9.3
242.0	37.8	36.9	79.0	66.0	-41.2	-29.1
323.7	37.7	36.6	79.0	66.0	-41.3	-29.4
368.6	27.0	22.6	79.0	66.0	-52.0	-43.4
403.9	33.9	32.6	79.0	66.0	-45.1	-33.4
448.4	24.4	20.9	79.0	66.0	-54.6	-45.1
2745.4	55	49.8	73.0	60.0	-18.0	-10.2
2816.4	55	50.3	73.0	60.0	-18.0	-9.7
3122.5	51.6	43.2	73.0	60.0	-21.4	-16.8
6905.4	38.5	31.9	73.0	60.0	-34.5	-28.1
7474.7	41.4	34.7	73.0	60.0	-31.6	-25.3
12786.2	30.1	29.2	73.0	60.0	-42.9	-30.8

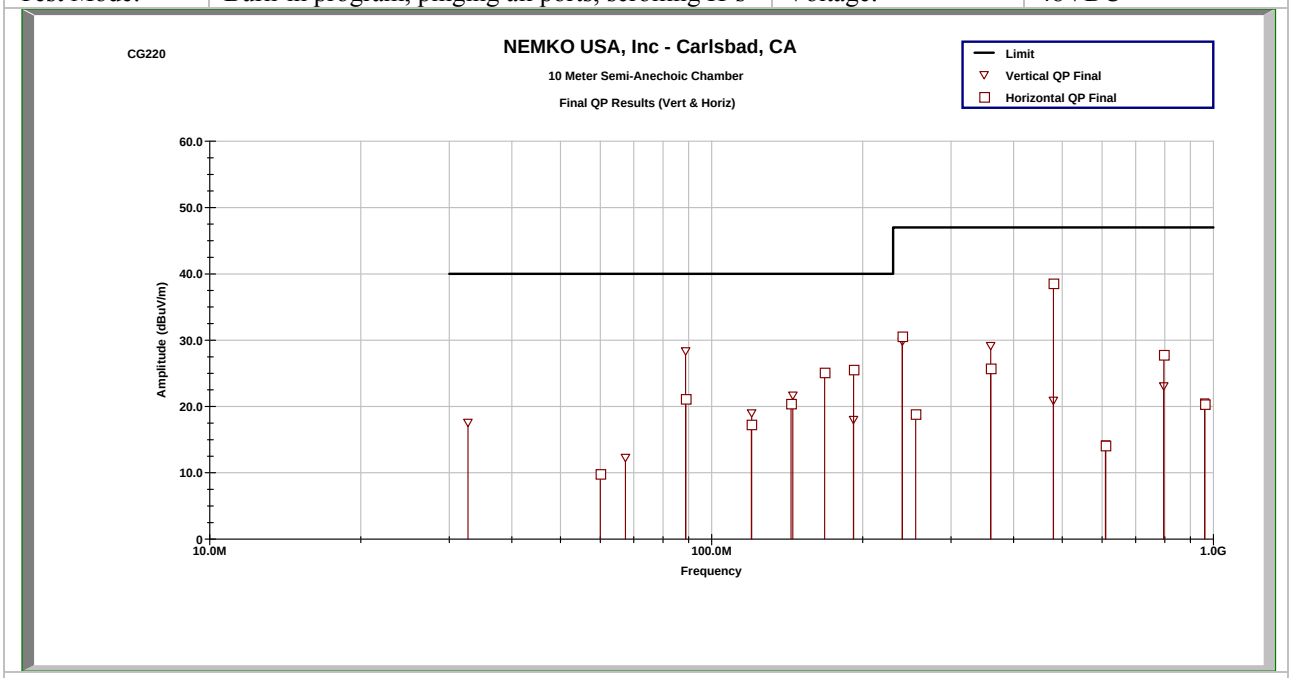
Client	Kontron America, Inc.	Temperature	21	°C
NEx #:	198889	Relative Humidity	49	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.5	kPa
EUT Model	CG2200	Test Location	Test Area 1	
Governing Doc	EN 55022	Test Engineer	Mark Phillips	
Basic Standard	CISPR 22	Date	6/18/12	
Voltage:	48VDC Return Lead (Worst Case Supply PS1)			



Frequency	Measured		Limit		Margin	
(kHz)	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
161.5	53.8	54.0	79.0	66.0	-25.2	-12.0
241.2	38.8	38.2	79.0	66.0	-40.2	-27.8
321.5	36.5	35.2	79.0	66.0	-42.5	-30.8
370.6	26.3	22.1	79.0	66.0	-52.7	-43.9
403.7	34.2	33.0	79.0	66.0	-44.8	-33.0
455.9	26.8	22.6	79.0	66.0	-52.2	-43.4
2745.8	54.6	49.4	73.0	60.0	-18.4	-10.6
2836.4	56.1	50.4	73.0	60.0	-16.9	-9.6
3120.2	52.7	44.5	73.0	60.0	-20.3	-15.5
6904.3	38.3	31.8	73.0	60.0	-34.7	-28.2
7473.6	41.1	34.6	73.0	60.0	-31.9	-25.4
12904.5	29.8	28.5	73.0	60.0	-43.2	-31.5

8.2. DC Input Power Radiated Emissions Test Data

Radiated Emissions Graphical Data				
Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	48	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.3	kPa
EUT Model	CG2200	Test Location	Semi Anechoic Chamb	
Governing Doc	EN 55022	Test Engineer	Mark Phillips	
Basic Standard	CISPR 22	Date	6/12/12	
Test Mode:	Burn-in program, pinging all ports, scrolling H's	Voltage:	48VDC	



Radiated Emissions Tabular Data

Horizontal

Measurement Frequency (MHz)	Meter Reading (dBµV)	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
60.033	29.6	11	111	9.8	40	-30.2	PASS	
88.822	42.7	278	176	21.1	40	-18.9	PASS	
120.031	32.5	58	111	17.3	40	-22.7	PASS	
144.019	38.3	11	364	20.4	40	-19.6	PASS	
168.019	39.4	355	389	25.1	40	-14.9	PASS	
191.963	38.6	31	388	25.6	40	-14.4	PASS	
239.972	48.8	11	390	30.6	47	-16.4	PASS	
255.097	36.1	11	389	18.8	47	-28.2	PASS	
360.029	39.6	12	293	25.7	47	-21.3	PASS	
479.984	49.9	72	242	38.6	47	-8.4	PASS	
609.502	23.8	11	111	14.1	47	-32.9	PASS	
796.453	34.6	227	111	27.8	47	-19.2	PASS	
961.447	22.4	349	111	20.4	47	-26.6	PASS	

Vertical

Measurement Frequency (MHz)	Meter Reading (dBµV)	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
32.691	36.7	357	111	17.6	40	-22.4	PASS	
67.345	33.7	355	111	12.3	40	-27.7	PASS	
88.791	49.9	62	110	28.4	40	-11.6	PASS	
120.226	34.3	11	112	19.0	40	-21.0	PASS	
145.249	39.4	11	111	21.7	40	-18.3	PASS	
191.756	31.1	11	111	18.0	40	-22.0	PASS	
239.992	48.0	3	331	29.8	47	-17.2	PASS	
360.035	43.1	132	346	29.2	47	-17.8	PASS	
479.993	32.3	11	389	20.9	47	-26.1	PASS	
610.121	24.0	11	389	14.3	47	-32.7	PASS	
796.403	29.9	11	389	23.1	47	-23.9	PASS	
960.840	22.7	11	389	20.7	47	-26.3	PASS	

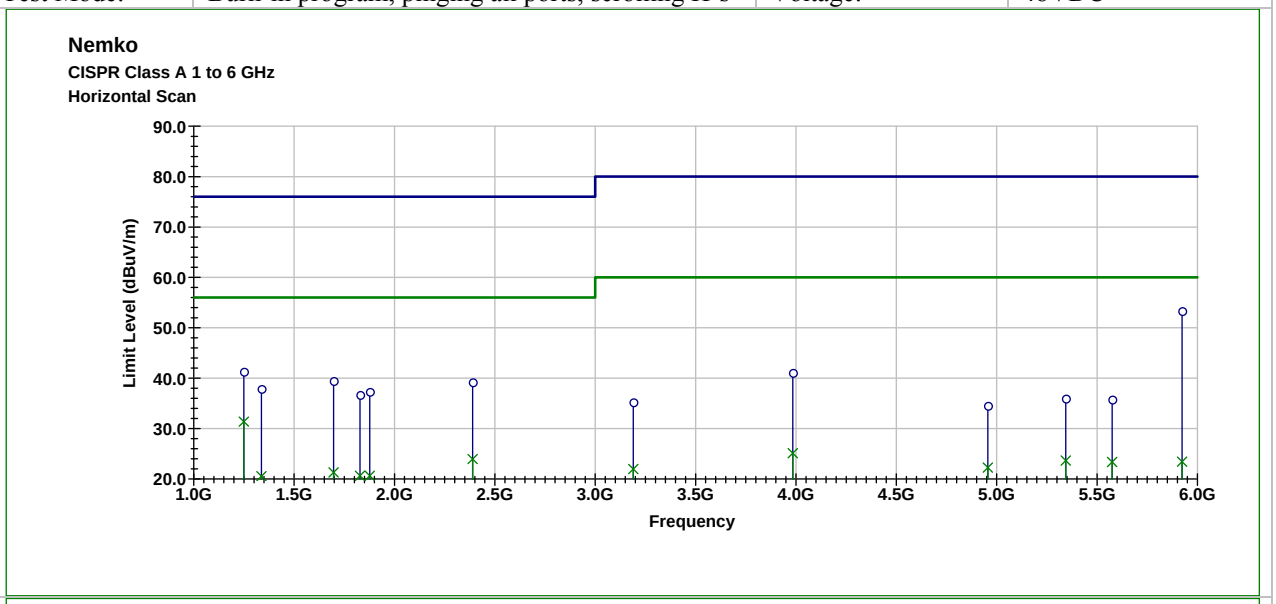
Calculation:

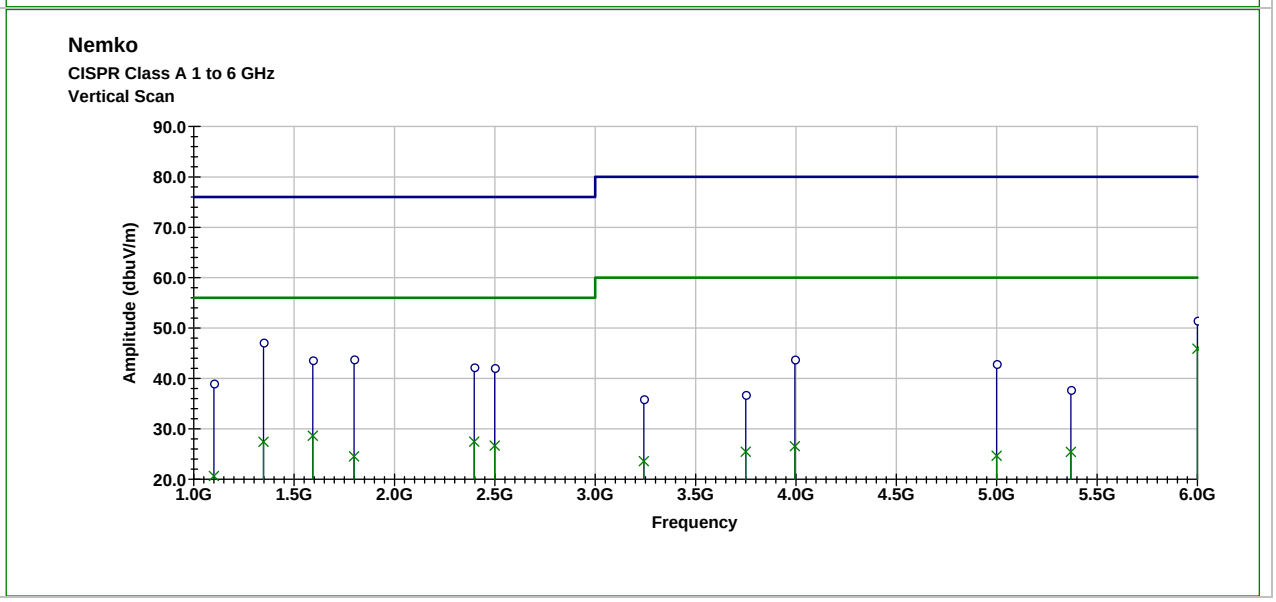
Meter Reading + antenna factor + cable loss – preamplifier = Corrected Reading
(Antenna factor, cable loss, preamplifier values are not listed.)
Corrected Reading – Spec. Limit = Margin
Negative Margin indicates passing emissions.

Meter Readings are Quasi-Peak maximum hold for turntable direction and antenna height.

Radiated Emissions Graphical Data

Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	48	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.3	kPa
EUT Model	CG2200	Test Location	Semi Anechoic Chamb	
Governing Doc	EN 55022	Test Engineer	Mark Phillips	
Basic Standard	CISPR 22	Date	6/12/12	
Test Mode:	Burn-in program, pinging all ports, scrolling H's	Voltage:	48VDC	





RADIATED EMISSIONS TABULAR DATA 1 – 6GHZ

HORIZONTAL POLARIZATION

Measurement Frequency (MHz)	Meter Reading (dBµV)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
1249.90	44.8	31.4	54	-22.6	Pass	Average
1249.90	54.8	41.3	74	-32.7	Pass	Peak
1337.07	34.0	20.5	54	-33.5	Pass	Average
1337.07	51.4	37.9	74	-36.1	Pass	Peak
1696.65	34.6	21.3	54	-32.7	Pass	Average
1696.65	52.7	39.5	74	-34.5	Pass	Peak
1828.48	32.4	20.6	54	-33.4	Pass	Average
1828.48	48.5	36.7	74	-37.3	Pass	Peak
1876.63	32.2	20.6	54	-33.4	Pass	Average
1876.63	48.8	37.3	74	-36.7	Pass	Peak
2389.60	34.1	23.9	54	-30.1	Pass	Average
2389.60	49.4	39.2	74	-34.8	Pass	Peak
3189.61	29.3	22.0	60	-38.0	Pass	Average
3189.61	42.5	35.2	80	-44.8	Pass	Peak
3984.36	30.2	25.1	60	-34.9	Pass	Average
3984.36	46.1	41.0	80	-39.0	Pass	Peak
4955.95	26.0	22.2	60	-37.8	Pass	Average
4955.95	38.3	34.5	80	-45.5	Pass	Peak
5344.09	26.0	23.6	60	-36.4	Pass	Average
5344.09	38.3	36.0	80	-44.0	Pass	Peak
5575.22	25.6	23.3	60	-36.7	Pass	Average
5575.22	38.0	35.7	80	-44.3	Pass	Peak
5923.58	25.6	23.3	60	-36.7	Pass	Average
5923.58	55.4	53.3	80	-26.7	Pass	Peak

RADIATED EMISSIONS TABULAR DATA 1 – 6GHZ

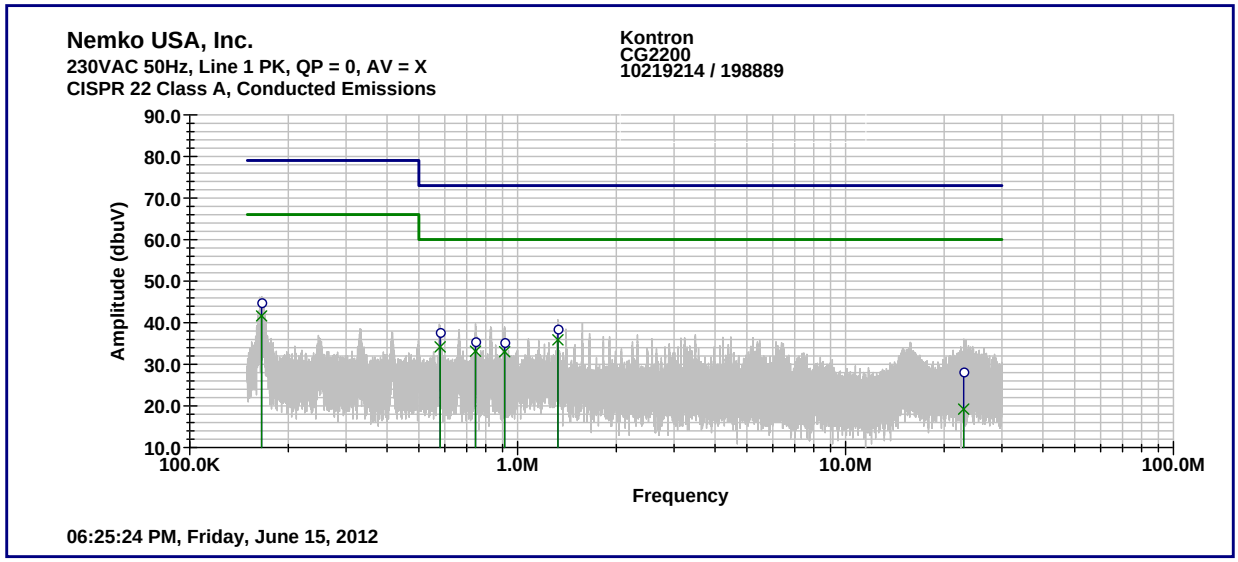
VERTICAL POLARIZATION

Measurement Frequency (MHz)	Meter Reading (dBµV)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
1100.17	35.2	20.6	54	-33.4	Pass	Average
1100.17	53.6	39.0	74	-35.0	Pass	Peak
1347.25	41.0	27.4	54	-26.6	Pass	Average
1347.25	60.7	47.1	74	-26.9	Pass	Peak
1592.99	41.8	28.6	54	-25.4	Pass	Average
1592.99	56.8	43.6	74	-30.4	Pass	Peak
1798.97	36.4	24.5	54	-29.5	Pass	Average
1798.97	55.7	43.8	74	-30.2	Pass	Peak
2397.57	37.6	27.4	54	-26.6	Pass	Average
2397.57	52.4	42.2	74	-31.8	Pass	Peak
2499.47	36.5	26.7	54	-27.3	Pass	Average
2499.47	52.0	42.1	74	-31.9	Pass	Peak
3241.88	30.7	23.6	60	-36.4	Pass	Average
3241.88	43.0	35.9	80	-44.1	Pass	Peak
3749.73	31.0	25.4	60	-34.6	Pass	Average
3749.73	42.3	36.7	80	-43.3	Pass	Peak
3994.59	31.6	26.5	60	-33.5	Pass	Average
3994.59	48.8	43.8	80	-36.2	Pass	Peak
4999.69	28.3	24.6	60	-35.4	Pass	Average
4999.69	46.5	42.9	80	-37.1	Pass	Peak
5369.97	27.6	25.4	60	-34.6	Pass	Average
5369.97	40.0	37.7	80	-42.3	Pass	Peak
5999.99	47.7	45.9	60	-14.1	Pass	Average
5999.99	53.3	51.5	80	-28.5	Pass	Peak

9. CE-mark Test Results

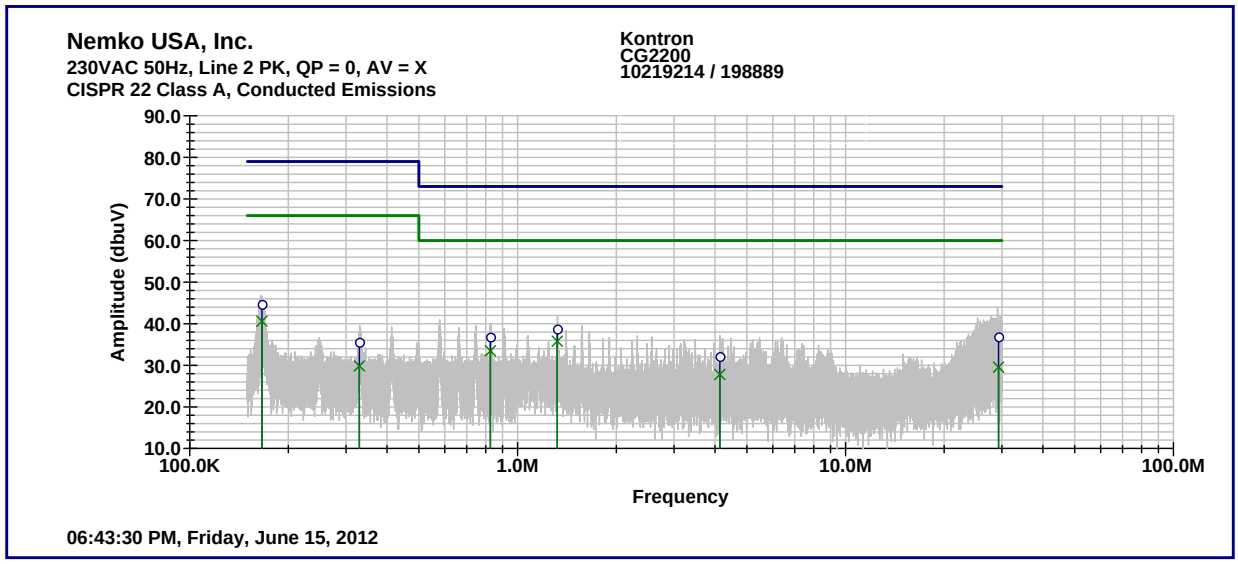
9.1. Conducted Emissions Test Data

Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	48	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.3	kPa
EUT Model	CG2200	Test Location	Location	
Governing Doc	EN 55022	Test Engineer	Test Engineer	
Basic Standard	CISPR 22	Date	6/15/12	
Voltage:	230 Vac, Line 1 (Worst Case Supply PS1)			



Frequency	Measured		Limit		Margin	
(kHz)	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
165.7	44.8	41.6	79.0	66.0	-34.2	-24.4
580.4	37.7	34.2	73.0	60.0	-35.3	-25.8
743.9	35.5	33.2	73.0	60.0	-37.5	-26.8
913.4	35.3	33.0	73.0	60.0	-37.7	-27.0
1327.0	38.5	35.9	73.0	60.0	-34.5	-24.1
22930.1	28.2	19.2	73.0	60.0	-44.8	-40.8

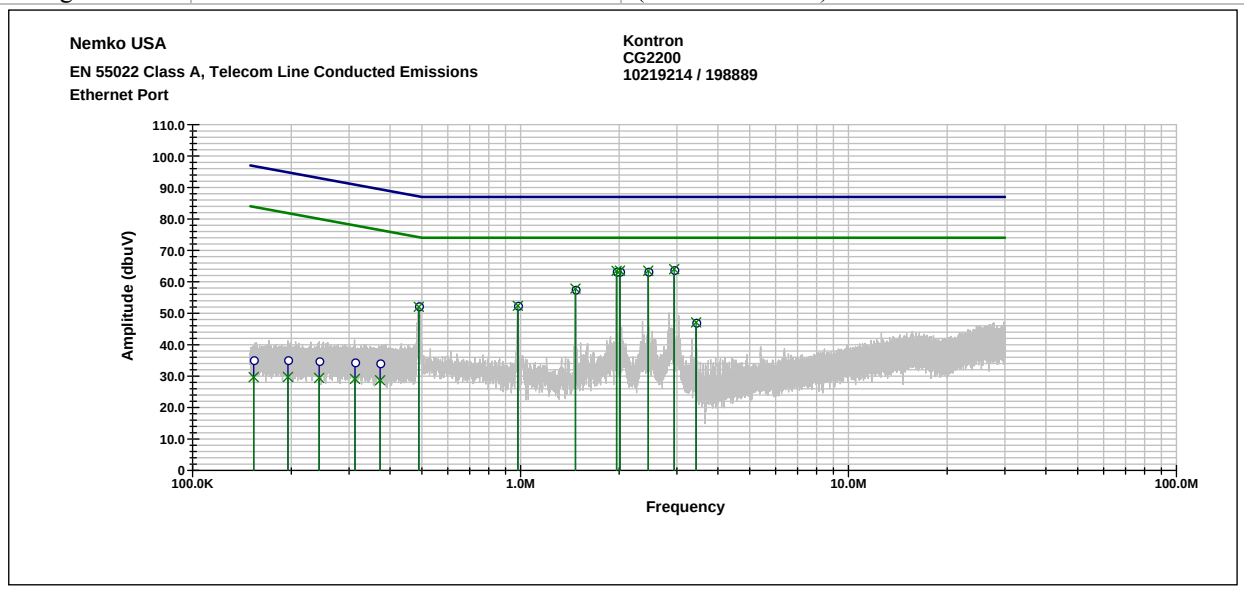
Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	48	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.3	kPa
EUT Model	CG2200	Test Location	Location	
Governing Doc	EN 55022	Test Engineer	Test Engineer	
Basic Standard	CISPR 22	Date	6/15/12	
Voltage:	230 Vac, Line 2 (Worst Case Supply PS1)			



Frequency	Measured		Limit		Margin	
(kHz)	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
166.2	44.7	40.6	79.0	66.0	-34.3	-25.4
329.2	35.6	29.8	79.0	66.0	-43.4	-36.2
826.3	36.8	33.5	73.0	60.0	-36.2	-26.5
1321.5	38.7	35.8	73.0	60.0	-34.3	-24.2
4136.1	32.1	27.8	73.0	60.0	-40.9	-32.2
29301.2	36.9	29.6	73.0	60.0	-36.1	-30.4

9.2. Telecom Conducted Emissions Test Data

Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	46	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.5	kPa
EUT Model	CG2200	Test Location	Test Area 3	
Governing Doc	EN 55022	Test Engineer	Mark Phillips	
Basic Standard	CISPR 22	Date	6/16/12	
Voltage:	230 Vac 50Hz	(Worst Case Port)		



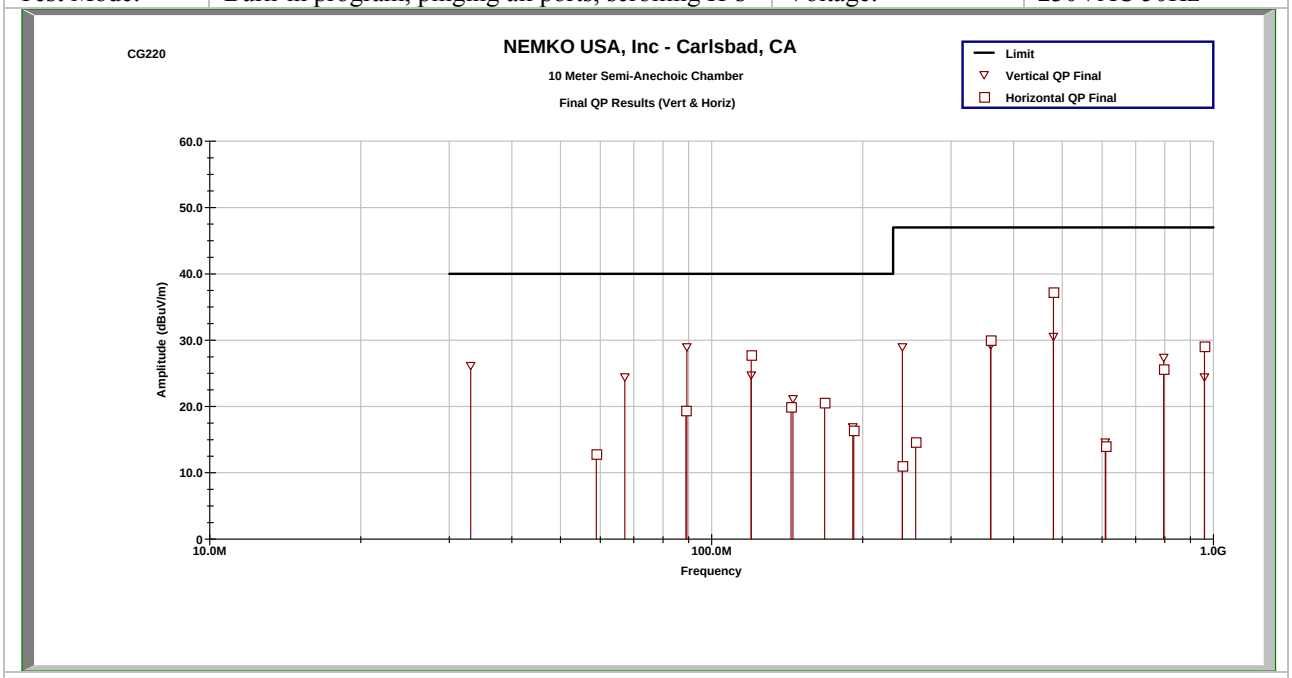
Frequency	Measured		Limit		Margin	
(kHz)	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
153.6	35.1	29.7	96.8	83.8	-61.7	-54.1
195.4	35.1	29.7	94.8	81.8	-59.7	-52.1
243.4	34.8	29.4	93.0	80.0	-58.2	-50.6
313.0	34.4	29.1	90.9	77.9	-56.5	-48.8
373.1	34.1	28.6	89.4	76.4	-55.3	-47.8
489.6	52.2	52	87.2	74.2	-35.0	-22.2
981.0	52.4	52.3	87.0	74.0	-34.6	-21.7
1470.5	57.5	57.8	87.0	74.0	-29.5	-16.2
1962.2	63.2	63.5	87.0	74.0	-23.8	-10.5
2009.9	63.2	63.5	87.0	74.0	-23.8	-10.5
2452.3	63.3	63.5	87.0	74.0	-23.7	-10.5
2942.0	63.8	64	87.0	74.0	-23.2	-10.0
3433.6	47	47.1	87.0	74.0	-40.0	-26.9

Conducted Emissions Test Equipment

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
E1018	9kHz to 7GHz Spectrum Analyzer	Rohde & Schwarz	FSP7	839337/0022	2/23/12	2/23/13
805	LISN	Solar	9348-50-R-24-BNC	992823	9/26/11	9/26/12
E1020	Two Line V-Network	Rohde & Schwarz	ENV216	101044	4/4/12	4/4/13
E1034	CISPR 22 Balanced Telecom Impedance	FCC	TLISN-T8-02	112254	12/19/11	12/19/12
814	Multimeter,	Fluke Corp	111	77820242	10/17/11	10/17/12
8399	Variable Autotransformer	Superior Electric	246	NA	NCR	NCR

9.3. Radiated Emissions Test Data

Radiated Emissions Graphical Data				
Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	48	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.3	kPa
EUT Model	CG2200	Test Location	Semi Anechoic Chamb	
Governing Doc	EN 55022	Test Engineer	Mark Phillips	
Basic Standard	CISPR 22	Date	6/15/12	
Test Mode:	Burn-in program, pinging all ports, scrolling H's	Voltage:	230VAC 50Hz	



Radiated Emissions Tabular Data

Horizontal

Measurement Frequency (MHz)	Meter Reading (dBµV)	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
58.934	32.6	0	211	12.8	40	-27.2	PASS	
88.894	40.9	296	111	19.4	40	-20.6	PASS	
120.007	42.9	351	348	27.7	40	-12.3	PASS	
144.017	37.8	358	389	19.9	40	-20.1	PASS	
168.009	34.8	361	389	20.6	40	-19.4	PASS	
192.020	29.5	361	389	16.4	40	-23.6	PASS	
240.005	29.2	9	112	11.0	47	-36.0	PASS	
255.186	31.9	3	282	14.6	47	-32.4	PASS	
360.029	43.9	76	389	30.0	47	-17.0	PASS	
479.976	48.6	186	214	37.2	47	-9.8	PASS	
610.591	23.6	10	112	14.0	47	-33.0	PASS	
796.419	32.4	220	111	25.6	47	-21.4	PASS	
959.980	31.0	351	111	29.1	47	-17.9	PASS	

Vertical

Measurement Frequency (MHz)	Meter Reading (dBµV)	Turn Table (degrees)	Antenna Height (cm)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
33.105	45.4	0	111	26.2	40	-13.8	PASS	
67.167	45.8	0	110	24.4	40	-15.6	PASS	
89.282	50.4	1	111	29.0	40	-11.0	PASS	
120.004	39.9	118	111	24.7	40	-15.3	PASS	
145.253	38.9	11	111	21.2	40	-18.8	PASS	
191.177	30.0	4	111	16.9	40	-23.1	PASS	
240.007	47.2	361	280	29.0	47	-18.0	PASS	
360.028	43.1	360	105	29.2	47	-17.8	PASS	
480.010	41.9	142	361	30.6	47	-16.4	PASS	
608.804	24.3	9	389	14.6	47	-32.4	PASS	
796.365	34.1	2	216	27.4	47	-19.6	PASS	
959.978	26.4	87	111	24.4	47	-22.6	PASS	

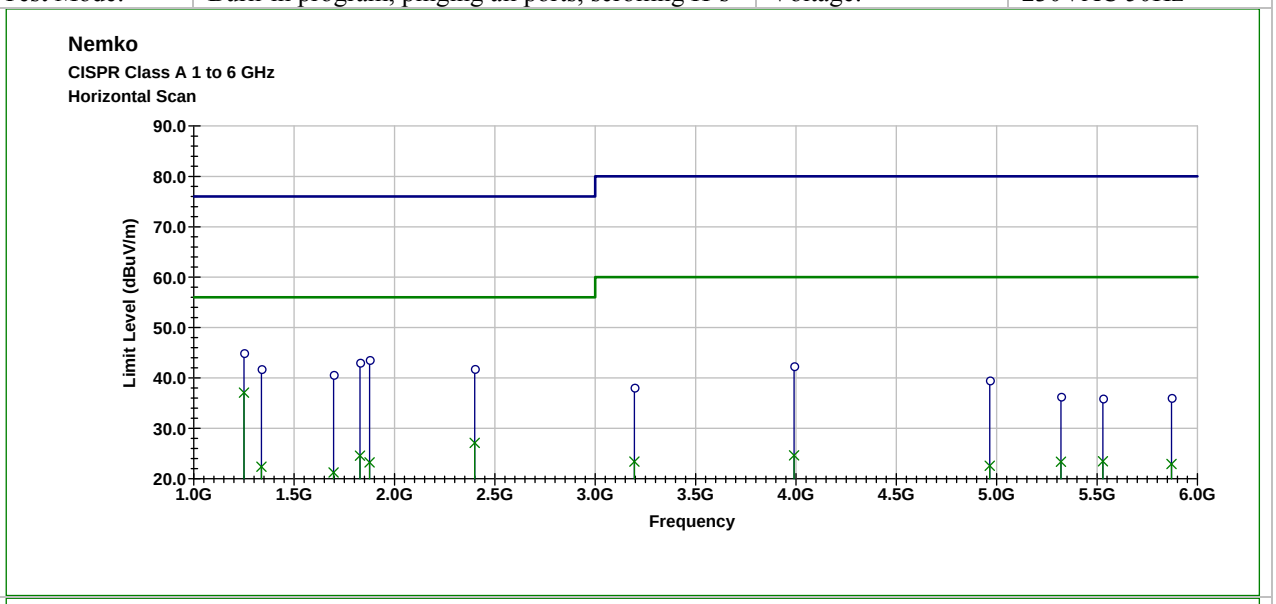
Calculation:

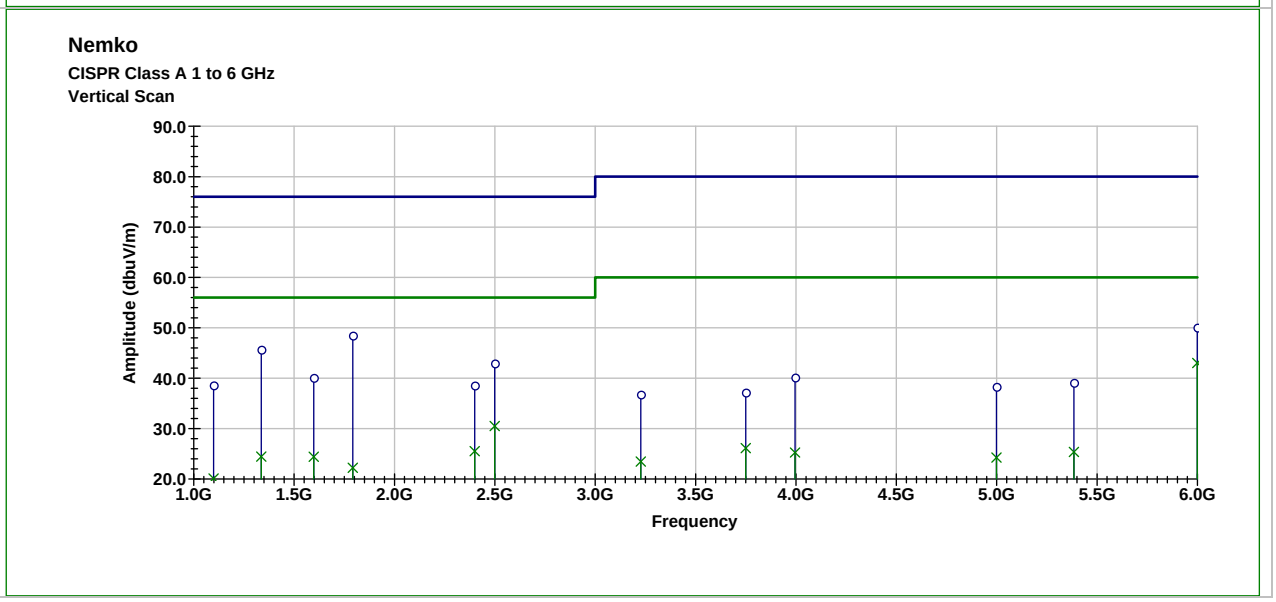
Meter Reading + antenna factor + cable loss – preamplifier = Corrected Reading
(Antenna factor, cable loss, preamplifier values are not listed.)
Corrected Reading – Spec. Limit = Margin
Negative Margin indicates passing emissions.

Meter Readings are Quasi-Peak maximum hold for turntable direction and antenna height.

Radiated Emissions Graphical Data

Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	48	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.3	kPa
EUT Model	CG2200	Test Location	Semi Anechoic Chamb	
Governing Doc	EN 55022	Test Engineer	Mark Phillips	
Basic Standard	CISPR 22	Date	6/15/12	
Test Mode:	Burn-in program, pinging all ports, scrolling H's	Voltage:	230VAC 50Hz	





Radiated Emissions Tabular Data 1 – 6GHz

HORIZONTAL POLARIZATION

Measurement Frequency (MHz)	Meter Reading (dBµV)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
1250.10	37.1	37.1	54	-16.9	Pass	Average
1250.10	44.9	44.9	74	-29.1	Pass	Peak
1337.02	22.4	22.4	54	-31.6	Pass	Average
1337.02	41.8	41.8	74	-32.2	Pass	Peak
1696.69	21.2	21.2	54	-32.8	Pass	Average
1696.69	40.6	40.6	74	-33.4	Pass	Peak
1828.09	24.6	24.6	54	-29.4	Pass	Average
1828.09	43	43	74	-31	Pass	Peak
1876.36	23.2	23.2	54	-30.8	Pass	Average
1876.36	43.6	43.6	74	-30.4	Pass	Peak
2399.83	27.1	27.1	54	-26.9	Pass	Average
2399.83	41.8	41.8	74	-32.3	Pass	Peak
3194.80	23.4	23.4	60	-36.6	Pass	Average
3194.80	38.1	38.1	80	-41.9	Pass	Peak
3991.30	24.6	24.6	60	-35.4	Pass	Average
3991.30	42.3	42.3	80	-37.7	Pass	Peak
4965.70	22.6	22.6	60	-37.4	Pass	Average
4965.70	39.5	39.5	80	-40.5	Pass	Peak
5320.48	23.4	23.4	60	-36.6	Pass	Average
5320.48	36.3	36.3	80	-43.7	Pass	Peak
5529.73	23.4	23.4	60	-36.6	Pass	Average
5529.73	35.9	35.9	80	-44.1	Pass	Peak
5871.36	22.9	22.9	60	-37.1	Pass	Average
5871.36	36.1	36.1	80	-43.9	Pass	Peak

RADIATED EMISSIONS TABULAR DATA 1 – 6GHZ

VERTICAL POLARIZATION

Measurement Frequency (MHz)	Meter Reading (dBµV)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Pass Fail	Comments
1098.58	34.6	20.1	54	-33.9	Pass	Average
1098.58	53.2	38.6	74	-35.4	Pass	Peak
1336.90	37.9	24.4	54	-29.6	Pass	Average
1336.90	59.2	45.7	74	-28.3	Pass	Peak
1597.81	37.6	24.4	54	-29.6	Pass	Average
1597.81	53.3	40.1	74	-33.9	Pass	Peak
1792.41	34.2	22.2	54	-31.8	Pass	Average
1792.41	60.5	48.5	74	-25.5	Pass	Peak
2399.67	35.6	25.5	54	-28.5	Pass	Average
2399.67	48.7	38.6	74	-35.4	Pass	Peak
2499.88	40.4	30.5	54	-23.5	Pass	Average
2499.88	52.8	43	74	-31	Pass	Peak
3227.09	30.7	23.5	60	-36.5	Pass	Average
3227.09	44	36.8	80	-43.2	Pass	Peak
3750.31	31.7	26.1	60	-33.9	Pass	Average
3750.31	42.7	37.1	80	-42.9	Pass	Peak
3995.73	30.3	25.2	60	-34.8	Pass	Average
3995.73	45.2	40.2	80	-39.8	Pass	Peak
4999.39	27.9	24.2	60	-35.8	Pass	Average
4999.39	42	38.3	80	-41.7	Pass	Peak
5384.81	27.5	25.4	60	-34.6	Pass	Average
5384.81	41.3	39.1	80	-40.9	Pass	Peak
5999.98	44.9	43	60	-17	Pass	Average
5999.98	51.9	50.1	80	-29.9	Pass	Peak

Radiated Emissions Test Equipment

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
911	Spectrum Analyzer	Agilent	E4440A	US41421266	10/27/2011	10/27/2012
110	Antenna, LPA	Electrometrics	LPA-25	1217	4/1/2011	4/1/2013
128	Antenna, Bicon	EMCO	3104	2882	3/21/2011	3/21/2013
902	Preamplifier	Sonoma	310 N	185803	7/14/2011	7/14/2012
877	Antenna, DRG Horn, .7-18GHz	AH Systems	SAS-571	688	8/16/2010	8/16/2012
E1029	Preamplifier (20MHz - 18GHz)	A.H. Systems, Inc.	PAM-0118	343	2/21/2012	2/21/2013

Radiated Emissions Test Equipment

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
911	Spectrum Analyzer	Agilent	E4440A	US41421266	10/27/2011	10/27/2012
110	Antenna, LPA	Electrometrics	LPA-25	1217	4/1/2011	4/1/2013
128	Antenna, Bicon	EMCO	3104	2882	3/21/2011	3/21/2013
902	Preamplifier	Sonoma	310 N	185803	7/14/2011	7/14/2012
877	Antenna, DRG Horn, .7-18GHz	AH Systems	SAS-571	688	8/16/2010	8/16/2012
E1029	Preamplifier (20MHz - 18GHz)	A.H. Systems, Inc.	PAM-0118	343	2/21/2012	2/21/2013

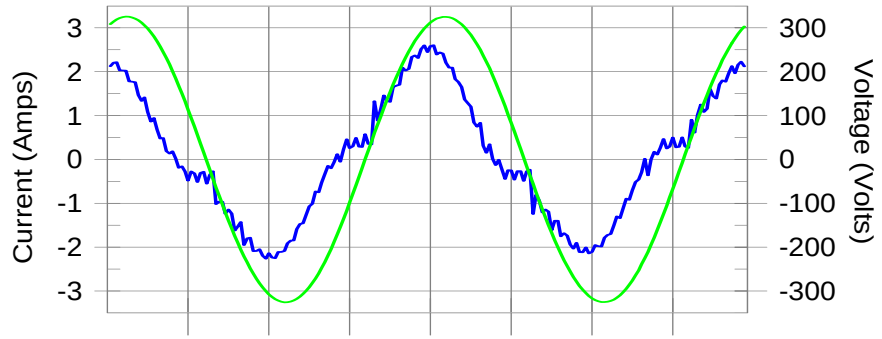
9.4. Power Line Harmonics Test Results

Harmonics – Class-A per Ed. 3.2 (2009)(Run time)

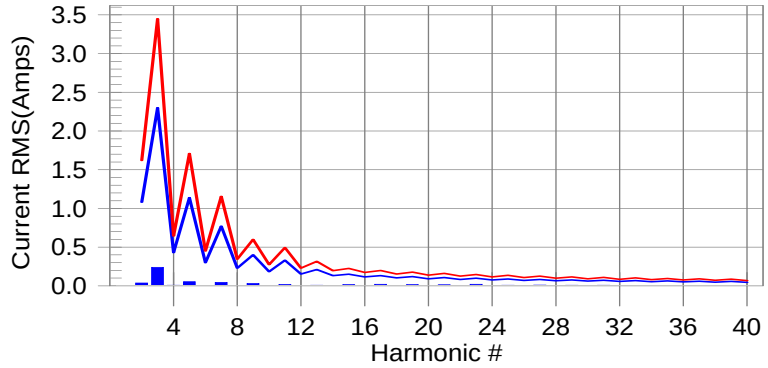
EUT: CG2200 *Tested by: MP*
Test category: Class-A per Ed. 3.2 (2009) (European limits) *Test Margin: 100*
Test date: 6/12/2012 *Start time: 6:16:44 PM* *End time: 6:47:05 PM*
Test duration (min): 30 *Data file name: H-000420.cts_data*
Comment: 230VAC 50Hz
Customer: Kontron

Test Result: Pass *Source qualification: Normal*

Current & voltage waveforms



Harmonics and Class A limit line *European Limits*



Test result: Pass Worst harmonic was #23 with 20.54% of the limit.

Current Test Result Summary (Run time)

EUT: CG2200 *Tested by: MP*
Test category: Class-A per Ed. 3.2 (2009) (European limits) *Test Margin: 100*
Test date: 6/12/2012 *Start time: 6:16:44 PM* *End time: 6:47:05 PM*
Test duration (min): 30 *Data file name: H-000420.cts_data*
Comment: 230VAC 50Hz
Customer: Kontron

Test Result: Pass *Source qualification: Normal*
THC(A): 0.25 *I-THD(%): 20.38* *POHC(A): 0.026* *POHC Limit(A): 0.286*
Highest parameter values during test:

V_RMS (Volts):	*230.29*	*Frequency(Hz):*	*50.00*
I_Peak (Amps):	*2.642*	*I_RMS (Amps):*	*1.370*
I_Fund (Amps):	*1.267*	*Crest Factor:*	*2.068*
Power (Watts):	*261.4*	*Power Factor:*	*0.887*

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.021	1.080	1.9	0.037	1.620	2.28	Pass
3	0.235	2.300	10.2	0.241	3.450	6.98	Pass
4	0.005	0.430	1.1	0.009	0.645	1.34	Pass
5	0.051	1.140	4.4	0.054	1.710	3.13	Pass
6	0.004	0.300	0.0	0.006	0.450	1.29	Pass
7	0.043	0.770	5.6	0.046	1.155	3.94	Pass
8	0.003	0.230	0.0	0.004	0.345	1.17	Pass
9	0.030	0.400	7.6	0.031	0.600	5.18	Pass
10	0.003	0.184	0.0	0.004	0.276	1.57	Pass
11	0.015	0.330	4.6	0.019	0.495	3.89	Pass
12	0.002	0.153	0.0	0.003	0.230	1.46	Pass
13	0.006	0.210	2.8	0.008	0.315	2.40	Pass
14	0.001	0.131	0.0	0.002	0.197	1.08	Pass
15	0.015	0.150	10.1	0.017	0.225	7.78	Pass
16	0.001	0.115	0.0	0.002	0.173	0.98	Pass
17	0.021	0.132	15.7	0.022	0.199	10.89	Pass
18	0.001	0.102	0.0	0.002	0.153	1.39	Pass
19	0.014	0.118	12.1	0.017	0.178	9.36	Pass
20	0.002	0.092	0.0	0.002	0.138	1.65	Pass
21	0.012	0.107	11.2	0.015	0.161	9.39	Pass
22	0.002	0.084	0.0	0.003	0.125	2.41	Pass
23	0.020	0.098	20.5	0.021	0.147	14.56	Pass
24	0.002	0.077	0.0	0.003	0.115	2.25	Pass
25	0.007	0.090	7.6	0.008	0.135	6.24	Pass
26	0.001	0.071	0.0	0.002	0.106	1.80	Pass
27	0.010	0.083	11.5	0.011	0.125	8.66	Pass
28	0.003	0.066	0.0	0.004	0.099	4.34	Pass
29	0.007	0.078	9.4	0.008	0.116	7.27	Pass
30	0.002	0.061	0.0	0.003	0.092	3.39	Pass
31	0.006	0.073	8.9	0.009	0.109	8.24	Pass
32	0.002	0.058	0.0	0.003	0.086	3.36	Pass
33	0.006	0.068	0.0	0.007	0.102	6.77	Pass
34	0.002	0.054	0.0	0.003	0.081	4.08	Pass
35	0.002	0.064	0.0	0.004	0.096	4.03	Pass
36	0.003	0.051	0.0	0.004	0.077	4.68	Pass
37	0.004	0.061	0.0	0.006	0.091	6.74	Pass
38	0.003	0.048	0.0	0.004	0.073	5.34	Pass
39	0.002	0.058	0.0	0.003	0.087	2.92	Pass
40	0.002	0.046	0.0	0.003	0.069	4.60	Pass

Voltage Source Verification Data (Run time)

EUT: CG2200 *Tested by: MP*
Test category: Class-A per Ed. 3.2 (2009) (European limits) *Test Margin: 100*
Test date: 6/12/2012 *Start time: 6:16:44 PM* *End time: 6:47:05 PM*
Test duration (min): 30 *Data file name: H-000420.cts_data*
Comment: 230VAC 50Hz
Customer: Kontron

Test Result: Pass *Source qualification: Normal*

Highest parameter values during test:

Voltage (Vrms):	*230.29*	*Frequency(Hz):*	*50.00*
I_Peak (Amps):	*2.642*	*I_RMS (Amps):*	*1.370*
I_Fund (Amps):	*1.267*	*Crest Factor:*	*2.068*
Power (Watts):	*261.4*	*Power Factor:*	*0.887*

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.203	0.460	44.00	OK
3	0.444	2.072	21.43	OK
4	0.037	0.461	8.12	OK
5	0.081	0.921	8.81	OK
6	0.038	0.461	8.17	OK
7	0.095	0.691	13.78	OK
8	0.012	0.461	2.69	OK
9	0.039	0.460	8.53	OK
10	0.016	0.460	3.46	OK
11	0.016	0.230	7.02	OK
12	0.012	0.230	5.25	OK
13	0.026	0.230	11.42	OK
14	0.013	0.230	5.50	OK
15	0.027	0.230	11.60	OK
16	0.009	0.230	3.94	OK
17	0.020	0.230	8.54	OK
18	0.022	0.230	9.64	OK
19	0.012	0.230	5.36	OK
20	0.012	0.230	5.20	OK
21	0.030	0.230	13.00	OK
22	0.011	0.230	4.84	OK
23	0.038	0.230	16.34	OK
24	0.012	0.230	5.42	OK
25	0.016	0.230	6.74	OK
26	0.010	0.230	4.27	OK
27	0.029	0.230	12.40	OK
28	0.013	0.230	5.72	OK
29	0.023	0.230	9.83	OK
30	0.011	0.230	4.63	OK
31	0.018	0.230	7.68	OK
32	0.010	0.230	4.20	OK
33	0.015	0.230	6.58	OK
34	0.012	0.230	5.12	OK
35	0.016	0.230	7.11	OK
36	0.018	0.230	7.65	OK
37	0.025	0.230	10.79	OK
38	0.014	0.230	6.16	OK
39	0.019	0.230	8.31	OK
40	0.009	0.230	3.89	OK

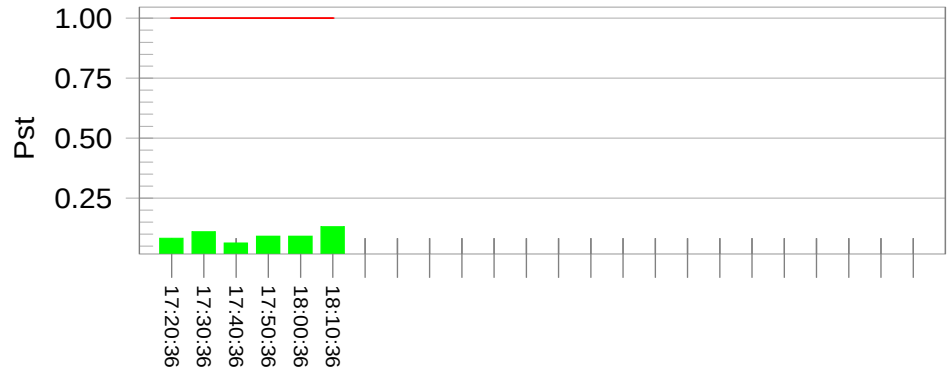
9.5. Power Line Flicker Test Results

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

EUT: CG2200 *Tested by: MP*
Test category: All parameters (European limits) *Test Margin: 100*
Test date: 6/12/2012 *Start time: 5:10:16 PM* *End time: 6:10:37 PM*
Test duration (min): 60 *Data file name: F-000419.cts_data*
Comment: 230Vac 50Hz
Customer: Kontron

Test Result: Pass *Status: Test Completed*

Pst_i and limit line *European Limits*



Plt and limit line

Parameter values recorded during the test:

Vrms at the end of test (Volt):	*230.04*			
Highest dt (%):	*-0.48*	*Test limit (%):*	*3.30*	*Pass*
Time(mS) > dt:	*0.0*	*Test limit (mS):*	*500.0*	*Pass*
Highest dc (%):	*0.00*	*Test limit (%):*	*3.30*	*Pass*
Highest dmax (%):	*0.48*	*Test limit (%):*	*4.00*	*Pass*
Highest Pst (10 min. period):	*0.132*	*Test limit:*	*1.000*	*Pass*
Highest Plt (2 hr. period):	*0.080*	*Test limit:*	*0.650*	*Pass*

Power Line Harmonics and Flicker Test Equipment

Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	54	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.5	kPa
EUT Model	CG2200	Test Location	Test Area 3	
Governing Doc	IEC/EN 61000	Test Engineer	Mark Phillips	
Basic Standards	IEC 61000-3-2, IEC 61000-3-3	Date	6/12/12	
Test Voltage:	230 VAC @ 50 Hz	Photo	☒	

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
604	AC Power Supply	California Instruments	Cabinet L	CS91167	2/29/12	2/29/13
NA	PCI, PC DAQ	National Instruments	6250	139A6B3	2/29/12	2/29/13
581	Standard Impedance	Xitron	2520	2526911004	2/29/12	2/29/13
961	Signal Conditioning Unit	Teseq	CCN 1000-3-75	72694	2/29/12	2/29/13
962	5kVA Power Source	Teseq	NSG 1007-5-208	58962	2/29/12	2/29/13
963	PC System, Microtower	HP	DC5800	NA	NCR	NCR

9.6. Electrostatic Discharge Immunity Test Results & Test Points

Client:	Kontron America, Inc.	Temperature:	23	°C
NEx #:	198889	Relative Humidity:	54	%
EUT Name:	Carrier Grade Communication Rack Mount Server	Barometric Pressure:	100.6	kPa
EUT Model:	CG2200	Test Location	ESD Room	
Governing Doc:	EN 55024	Test Engineer	Mark Phillips	
Basic Standard:	IEC 61000-4-2	Date:	6/12/12	
Test Voltage:	230 VAC @ 50 Hz and 48VDC	Photo:	☒	

Test Conditions

Discharge Rep. Rate	☒ ≥ 1 per second
Number of Discharges	☒ ≥ 10 per location
Performance Criteria:	B
EUT Mode:	Burn-in Program with Pinging and Scrolling H's

Contact Discharge

Voltage: (+/- kV)	☒ 2	☒ 4	☐ 6	☐ 8	☐ Other: ___

Location	Comments
Vertical Coupling Plane	No susceptibility noted.
Horizontal Coupling Plane	No susceptibility noted.
Contact Locations	No susceptibility noted.

Air Discharge

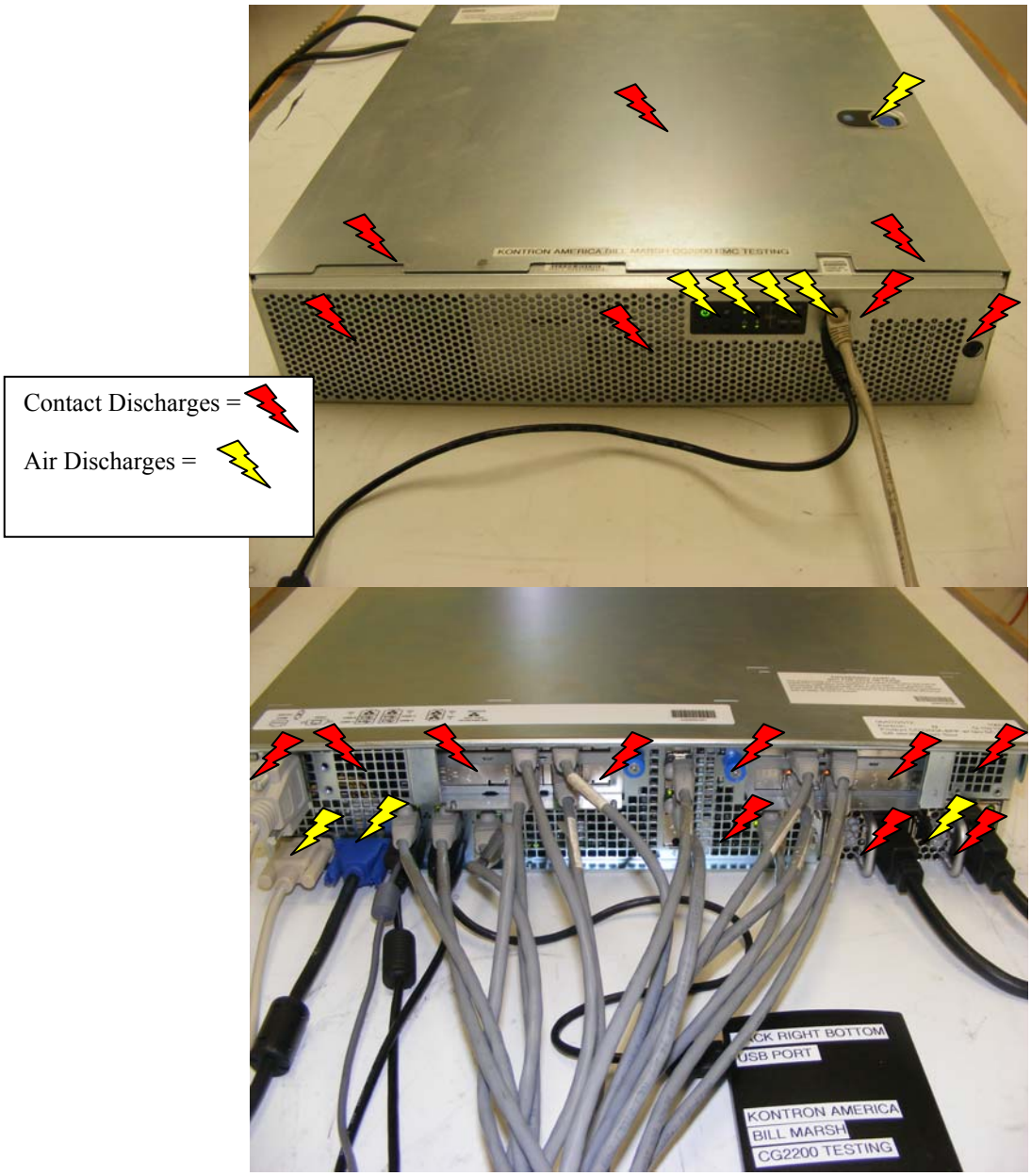
Voltage: (+/- kV)	☒ 2	☒ 4	☒ 8	☐ 15	☐ Other: ___

Location	Comments
Air Locations	No susceptibility noted.
"Spark" event(s)	No spark events noted.
Compliant	☒ No susceptibility noted. Test performed at 230VAC 50Hz and 48VDC
Non-Compliant	☐

ESD Test Equipment

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
818	ESD Gun,	Schaffner	NSG 435	5111	11/3/11	11/3/12

Figure 11.ESD Test Points



9.7. Radio Frequency Immunity Test Results

Client:	Kontron America, Inc.	Temperature:	22	°C
NEx #:	198889	Relative Humidity:	43	%
EUT Name:	Carrier Grade Communication Rack Mount Server	Barometric Pressure:	100.4	kPa
EUT Model:	CG2200	Test Location	RFI Chamber	
Governing Doc:	EN 55024	Test Engineer	Mark Phillips	
Basic Standard:	IEC 61000-4-3	Date:	6/13/12	
Test Voltage:	230 VAC @ 50 Hz and 48VDC	Photo:	☒	

Test Conditions

Test Level:	3 V/m
Frequency Swept:	80 to 2500 MHz
Selected Frequencies:	
Modulation:	80 % Depth, 1 kHz AM Modulation
Frequency Step:	1 %
Dwell Time:	3 seconds
Performance Criteria:	A
EUT Mode:	Burn-in Program with Pinging and Scrolling H's

Test Scans Accomplished

Frequency (MHz)	Antenna Polarization		Compliant		Orientation F: Front R: Rear SL: Side, Left SR: Side, Right	Comments
	H	**V**	**Y**	**N**		
80-200	☒	☒	☒		F	No susceptibility noted
80-200	☒	☒	☒		R	No susceptibility noted.
80-200	☒	☒	☒		SL	No susceptibility noted.
80-200	☒	☒	☒		SR	No susceptibility noted.
200-1000	☒	☒	☒		SR	No susceptibility noted.
200-1000	☒	☒	☒		SL	No susceptibility noted.
200-1000	☒	☒	☒		R	No susceptibility noted.
200-1000	☒	☒	☒		F	No susceptibility noted.
1000-2700	☒	☒	☒		F	No susceptibility noted
1000-2700	☒	☒	☒		R	No susceptibility noted.
1000-2700	☒	☒	☒		SL	No susceptibility noted.
1000-2700	☒	☒	☒		SR	No susceptibility noted.
		Additional Comments:				
Compliant	☒	No susceptibility noted. Test run at 230VAC 50Hz and 48VDC input voltages				
Non-Compliant	☐					

Radio Frequency Immunity Test Equipment

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
751	Signal Generator	HP	8642B	3034A03286	6/21/2011	6/21/2012
932	Signal Generator	HP	8673C	2822A00556	7/1/2011	7/1/2012
922	Field Sensor	ETS Lindgren	HI-6005	64407	1/18/12	1/18/13
740	Amplifier	AR	500W1000M5	23680	NCR	NCR
743	Amplifier	AR	200T1G3M3	19629	NCR	NCR

Antennas

Nemko ID	Manufacturer	VSWR	Model	Cal Date	Cal Due Date
EA 2466	EMCO	1.9:1	3109	NCR	NCR
372	Electro-Metrics	2.0:1	RGA-25	NCR	NCR
728	AR	1.6:1	AT4002A	NCR	NCR

9.8. Electrical Fast Transient Burst Immunity Test Results

Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	52	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.9	kPa
EUT Model	CG2200	Test Location	Ground Plane	
Governing Doc	EN 55024	Test Engineer	Mark Phillips	
Basic Standard	IEC 61000-4-4	Date	6/20/12	
Test Voltage:	230 VAC @ 50 Hz and 48VDC	Photo:	☒	

Test Conditions

Power Port:	AC Mains
Highest Power Port Test Level:	1.0 kV
Highest Signal Port Test Level:	0.5 kV
Test Duration:	61 Seconds
Burst:	5 kHz
Performance Criteria:	A
EUT Mode:	Burn in program with pinging and scrolling H's

Direct Injection Output Path

Test Level	L1	L2	PE	Comments
+/- 1.0kV	☒			No Susceptibility Noted
+/- 1.0kV		☒		No Susceptibility Noted
+/- 1.0kV			☒	No Susceptibility Noted
+/- 1.0kV		☒	☒	No Susceptibility Noted
+/- 1.0kV	☒	☒		No Susceptibility Noted
+/- 1.0kV	☒	☒	☒	No Susceptibility Noted
+/- 0.50kV	☒	☒		No Susceptibility Noted (48VDC)

Cable Description (Clamp Injection)

+/- 0.50kV	Ethernet Cable #1	No Susceptibility Noted
+/- 0.50kV	Ethernet Cable #2	No Susceptibility Noted
+/- 0.50kV	RS-232 Cable	No Susceptibility Noted

		Additional Comments
Compliant	☒	No susceptibility noted.
Non-Compliant	☐	

Test Equipment

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
E1018	Clamp	Haefely	093 506.1	083 874-08	NCR	NCR
845	Multi-Generator	EMC Partner	TRA 2000	680	12/22/11	12/22/12
417	Clamp	Haefely	093 506.1	083 878-15	NCR	NCR
813	Multimeter	Fluke	111	BB1307	9/25/11	9/25/12
0394	Electric, Variable Autotransformer	Powerstat	246	None	NCR	NCR

9.9. Power Line Surge Immunity Test Results

Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	43	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.5	kPa
EUT Model	CG2200	Test Location	Ground Plane	
Governing Doc	EN 55024	Test Engineer	Mark Phillips	
Basic Standard	IEC 61000-4-5	Date	6/14/12	
Test Voltage:	230 VAC @ 50 Hz and 48VDC	Photo:	☒	

Test Conditions	
Power Port:	AC Mains and DC Mains
Highest Power Port Test Level Line – Line:	1.0 kV (Level 3) (0.5kV in DC configuration)
Highest Power Port Test Level Line – Ground:	2.0 kV (Level 3)
Highest Signal Port Test Level:	None
Rest Duration between Strikes:	61 Seconds
Number of Strikes per Voltage:	Twenty (20)
Repetitions	5 each Polarity
Polarity	Negative And Positive
Strike Angles on power frequency phase:	0º 90º 180º 270º
Waveform Generator Type:	Combination
Performance Criteria:	B
EUT Mode:	Burn-in Program with Pinging and Scrolling H's

Test Strikes Accomplished

	Level 1				Level 2				Level 3				Level 4				Special			
	CM		DM		CM		DM		CM		DM		CM		DM		CM		DM	
	0.5kV		0.25kV		1.0kV		0.5kV		2.0kV		1.0kV		4.0kV		2.0kV					
	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
N–Gnd	☒	☒			☒	☒			☒	☒			☐	☐			☐	☐		
L1–Gnd	☒	☒			☒	☒			☒	☒			☐	☐						
N-L1			☒	☒			☒	☒			☒	☒			☐	☐			☐	☐

		Additional Comments
Compliant	☒	No susceptibility noted on AC or DC configurations
Non-Compliant	☐	

Test Equipment

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
845	Multi-Generator	EMC Partner	TRA 2000	680	11/22/2011	11/22/2012
687	Surge Generator	Haefely	Psurge 4010	583 334-74	3/16/12	3/16/13
813	Multimeter	Fluke	111	BB1307	9/25/11	9/25/12
0394	Electric, Variable Autotransformer	Powerstat	246	None	NCR	NCR

9.10.RF Conducted Common Mode Disturbance Immunity Test Results

Client	Kontron America, Inc.	Temperature	22	˚C
NEx #:	198889	Relative Humidity	38	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.5	kPa
EUT Model	CG2200	Test Location	Ground Plane	
Governing Doc	EN 55024	Test Engineer	Mark Phillips	
Basic Standard	IEC 61000-4-6	Date	6/20/12	
Test Voltage:	230 VAC @ 50 Hz and 48DVC	Photo:	☒	

Test Conditions

Test Level:	3 V/m
Modulation:	80 % Depth, 1 kHz AM Modulation
Frequency Range:	0.15 to 80 MHz
Selected Frequencies:	None
Step:	1 %
Dwell Time:	3 seconds
Performance Criteria:	A
EUT Mode:	Burn-in Program with Pinging and Scrolling H's

1	Injection Point	AC Mains (230VAC)	Injection Method: ☐ Clamp	☒ CDN
	Comments:	No susceptibility noted.		
2	Injection Point	DC Mains (48VDC)	Injection Method: ☐ Clamp	☒ CDN
	Comments:	No susceptibility noted.		
3	Injection Point	Ethernet (Upper Right)	Injection Method: ☒ Clamp	☐ CDN
	Comments:	No susceptibility noted.		
4	Injection Point	Ethernet Cable Lower Left)	Injection Method: ☒ Clamp	☐ CDN
	Comments:	No susceptibility noted.		
5	Injection Point	RS-232 Cable	Injection Method: ☒ Clamp	☐ CDN
	Comments:	No susceptibility noted.		
		Additional Comments		
	Compliant	☒	No susceptibility noted.	
	Non-Compliant	☐		

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
948	Signal Generator	HP	8657A	3430U02365	12/06/11	12/06/12
472	CDN	FCC	FCC-801-M2-25	24	6/22/11	6/22/12
846	CDN	FCC	FCC-801-M3-25	05015	6/22/11	6/22/12
629	CDN	FCC	FCC-801-M5-25	97-01	1/26/12	1/26/13
913	Amplifier	EIN	3100L	103	NCR	NCR
436	Clamp	Solar	9144-1N	935717	NCR	NCR
813	Multimeter	Fluke	111	BB1307	9/25/11	9/25/12
0394	Electric, Variable Autotransformer	Powerstat	246	None	NCR	NCR

9.11.Power Frequency Magnetic Field Immunity

Client:	Kontron America, Inc.	Temperature:	22	°C
NEx #:	198889	Relative Humidity:	52	%
EUT Name:	Carrier Grade Communication Rack Mount Server	Barometric Pressure:	100.5	kPa
EUT Model:	CG2200	Test Location:	ESD Room	
Governing Doc:	EN 55024	Test Engineer:	Mark Phillips	
Basic Standard:	IEC 61000-4-8	Date:	6/18/12	
Test Voltage:	230 VAC @ 50 Hz	Photo:	☒	

Test Conditions

Threat Level:	3 A/m
Frequency:	50Hz
Duration Per Axis:	5 Minutes
Performance Criteria:	A
EUT Mode:	Burn-in Program with Pinging and Scrolling H's

	Compliant		
Test Axis	Y	N	Comments
X	☒	☐	No susceptibility noted.
Y	☒	☐	No susceptibility noted.
Z	☒	☐	No susceptibility noted.

Additional Comments:

Compliant	☒	No susceptibility noted.
Non-Compliant	☐	

Test Equipment

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
851	B-field sensor	Narda	ELT-400	F-0011	8/30/11	8/30/12
E1036	Magnetic Coil, Large	Nemko	E1036	None	NCR	NCR
813	Multimeter	Fluke	111	BB1307	9/25/11	9/25/12
0394	Electric, Variable Autotransformer	Powerstat	246	None	NCR	NCR

9.12. Voltage Dips and Interruptions Immunity Test Results

Client	Kontron America, Inc.	Temperature	22	°C
NEx #:	198889	Relative Humidity	46	%
EUT Name	Carrier Grade Communication Rack Mount Server	Barometric Pressure	100.5	kPa
EUT Model	CG2200	Test Location	ESD Room	
Governing Doc	EN 55024	Test Engineer	Mark Phillips	
Basic Standard	IEC 61000-4-11	Date	6/18/12	
Test Voltage:	230 VAC @ 50 Hz	Photo:	☒	

Test Conditions

Voltage Dips

Performance Criteria:	B
Changes Occur At:	Zero Crossing

% Reduction	Duration sec/period	Compliant
>95%	10msec / 0.5	☒
30%	500msec / 25	☒
		Comments:
Compliant	☒	No susceptibility noted.
Non-Compliant	☐	

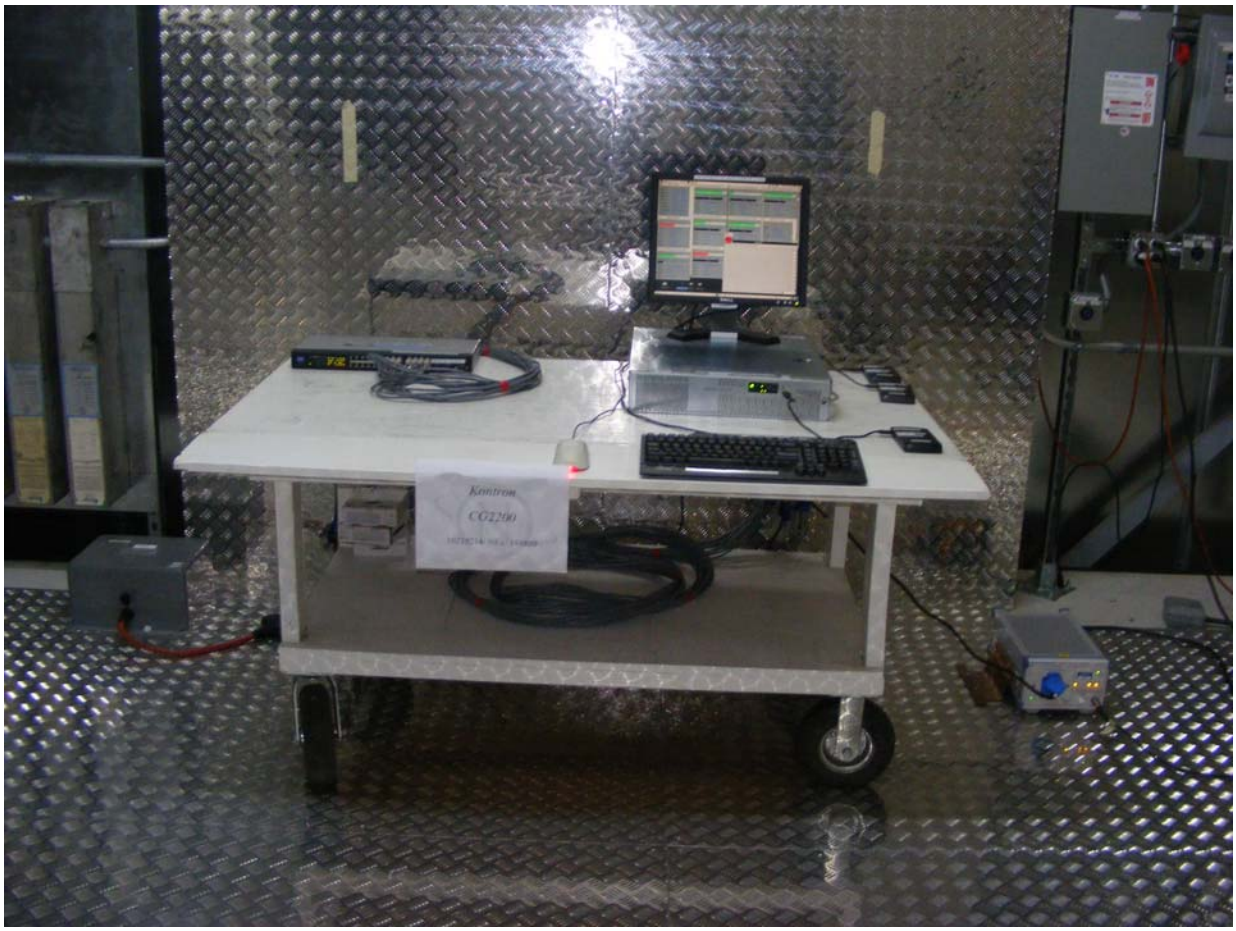
Voltage Interruptions

Performance Criteria:	C

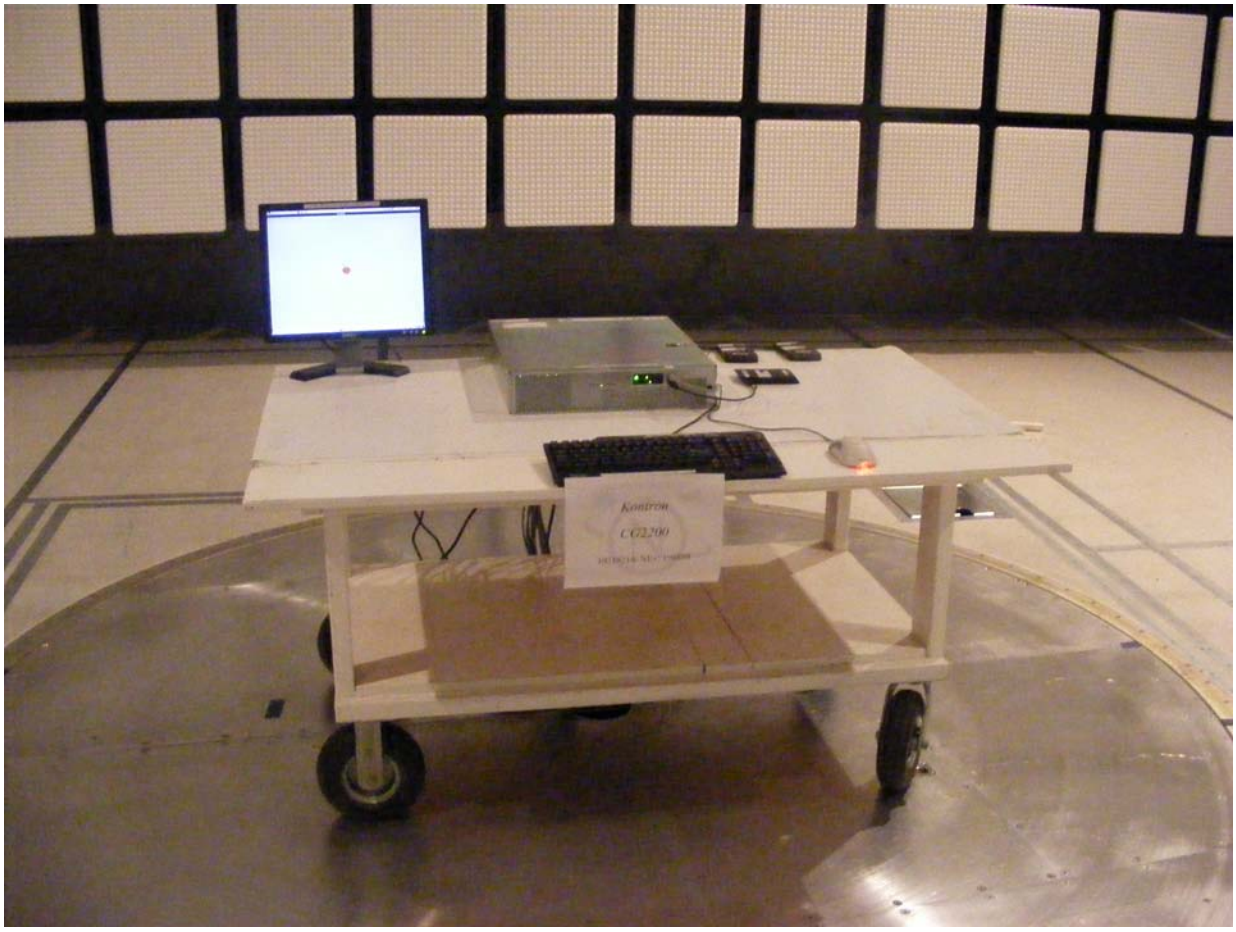
% Reduction	Duration sec/period	Compliant
>95%	5000msec / 250	
		Comments:
Compliant	☒	No susceptibility noted. Unit required manual restart, compliant with criteria C.
Non-Compliant	☐	

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
604	AC Power Supply	California Instruments	Cabinet L	CS91167	2/29/12	2/29/13
NA	PCI, PC DAQ	National Instruments	6250	139A6B3	2/29/12	2/29/13
581	Standard Impedance	Xitron	2520	2526911004	2/29/12	2/29/13
961	Signal Conditioning Unit	Teseq	CCN 1000-3-75	72694	2/29/12	2/29/13
962	5kVA Power Source	Teseq	NSG 1007-5-208	58962	2/29/12	2/29/13
963	PC System, Microtower	HP	DC5800	NA	NCR	NCR

Photograph 3. Conducted Emissions Test Configuration

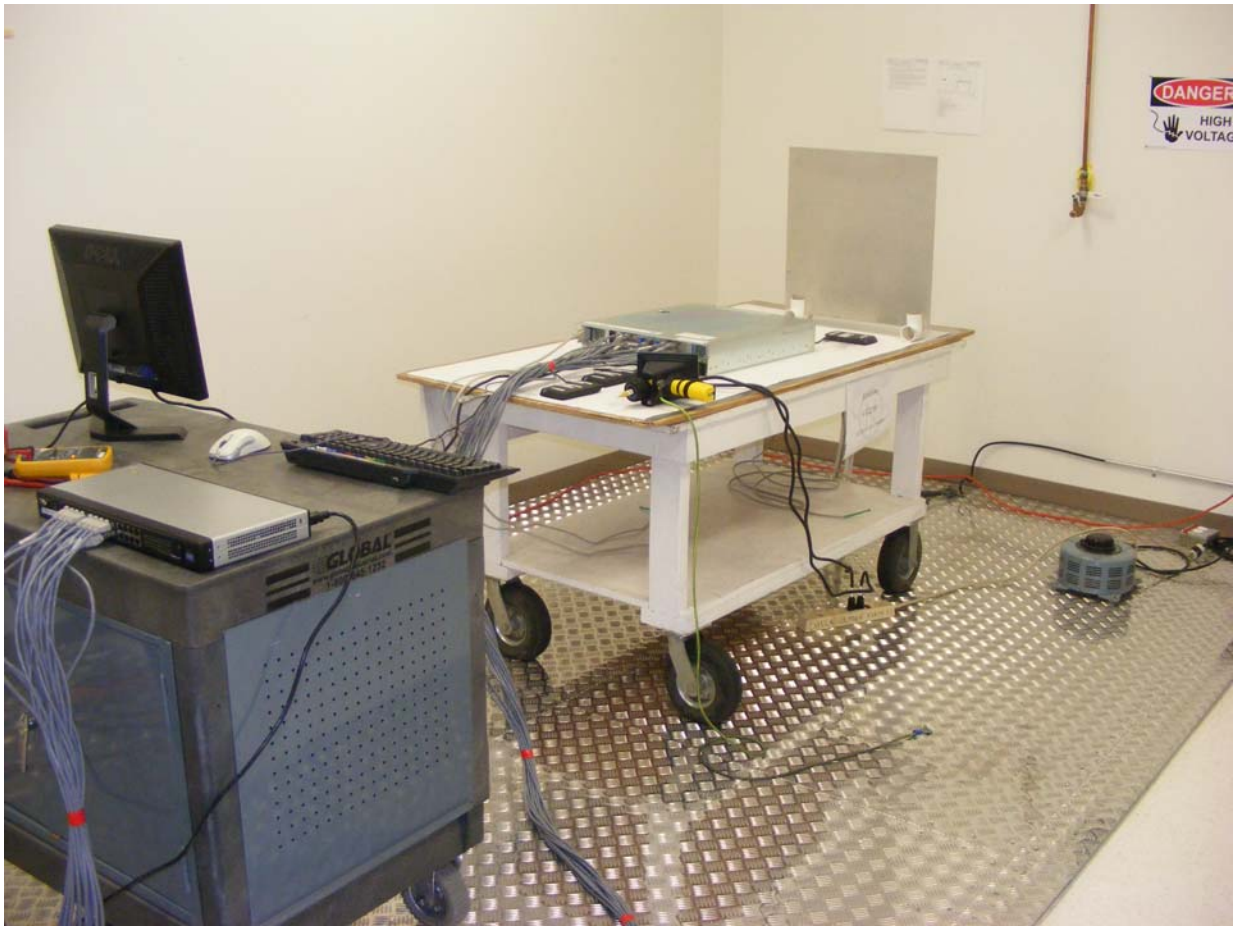


Photograph 4. Radiated Emissions Test Configuration

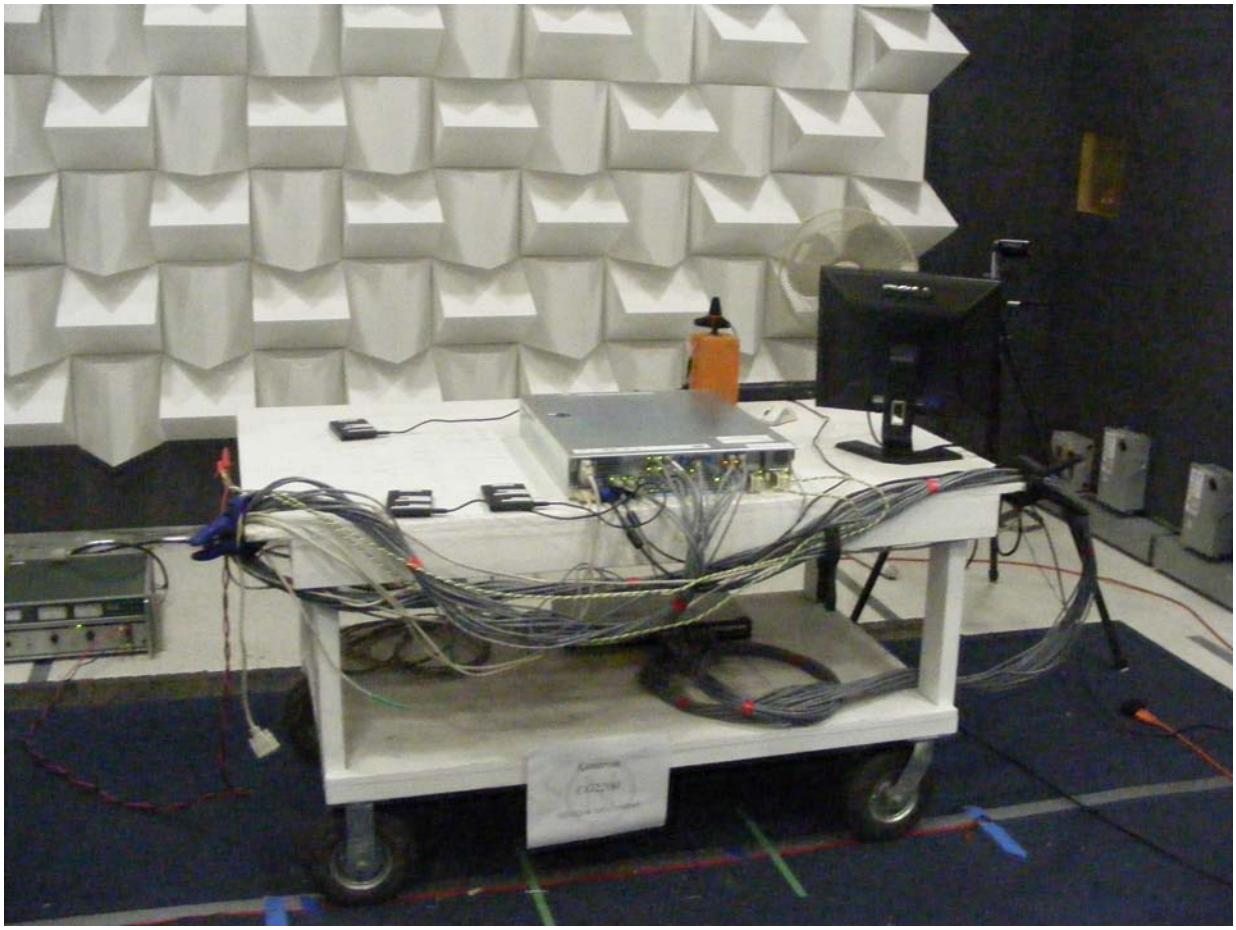


Photograph 5. Harmonics & Flicker Test Configuration

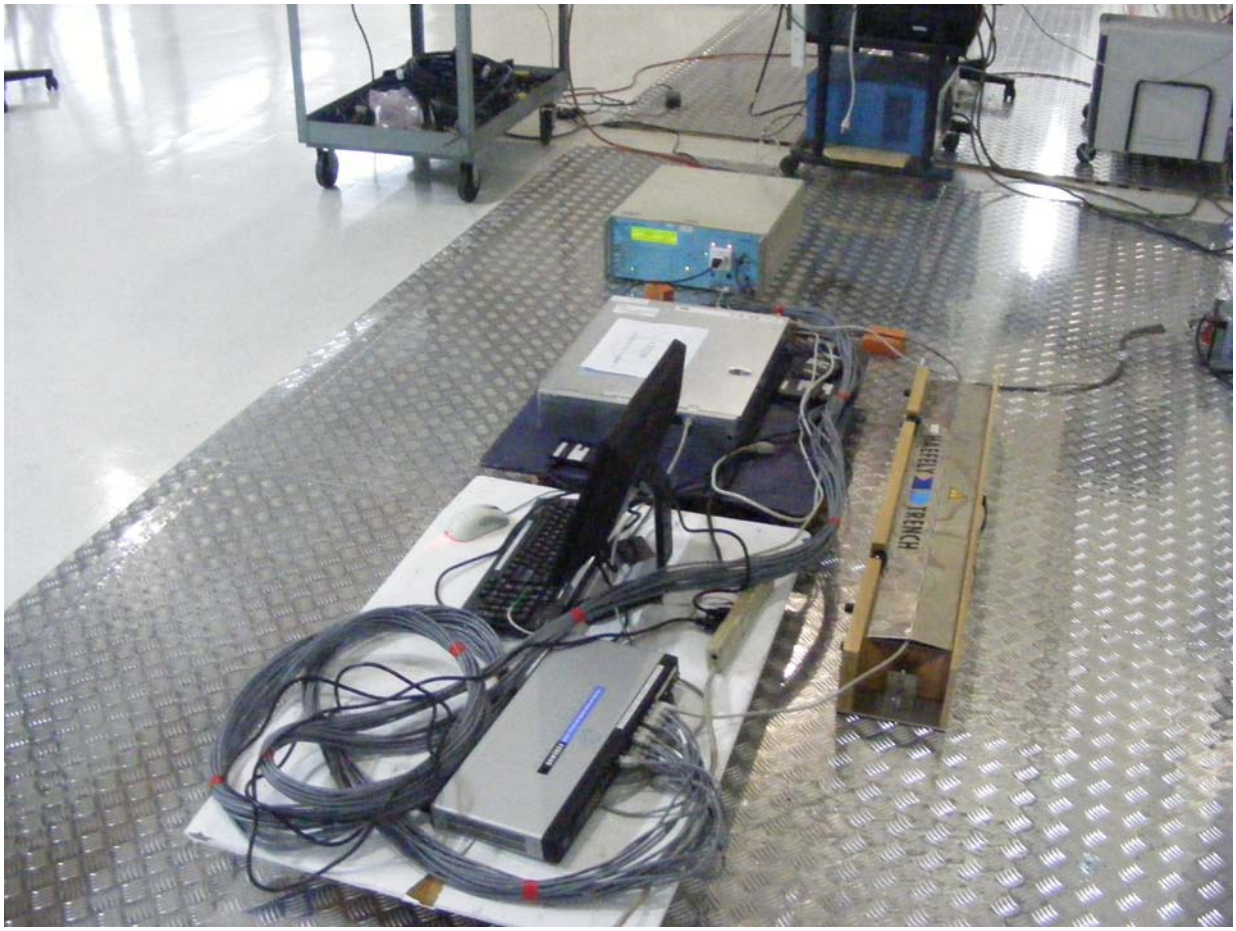
Photograph 6. ESD Test Configuration



Photograph 7. Radio Frequency Immunity Test Configuration

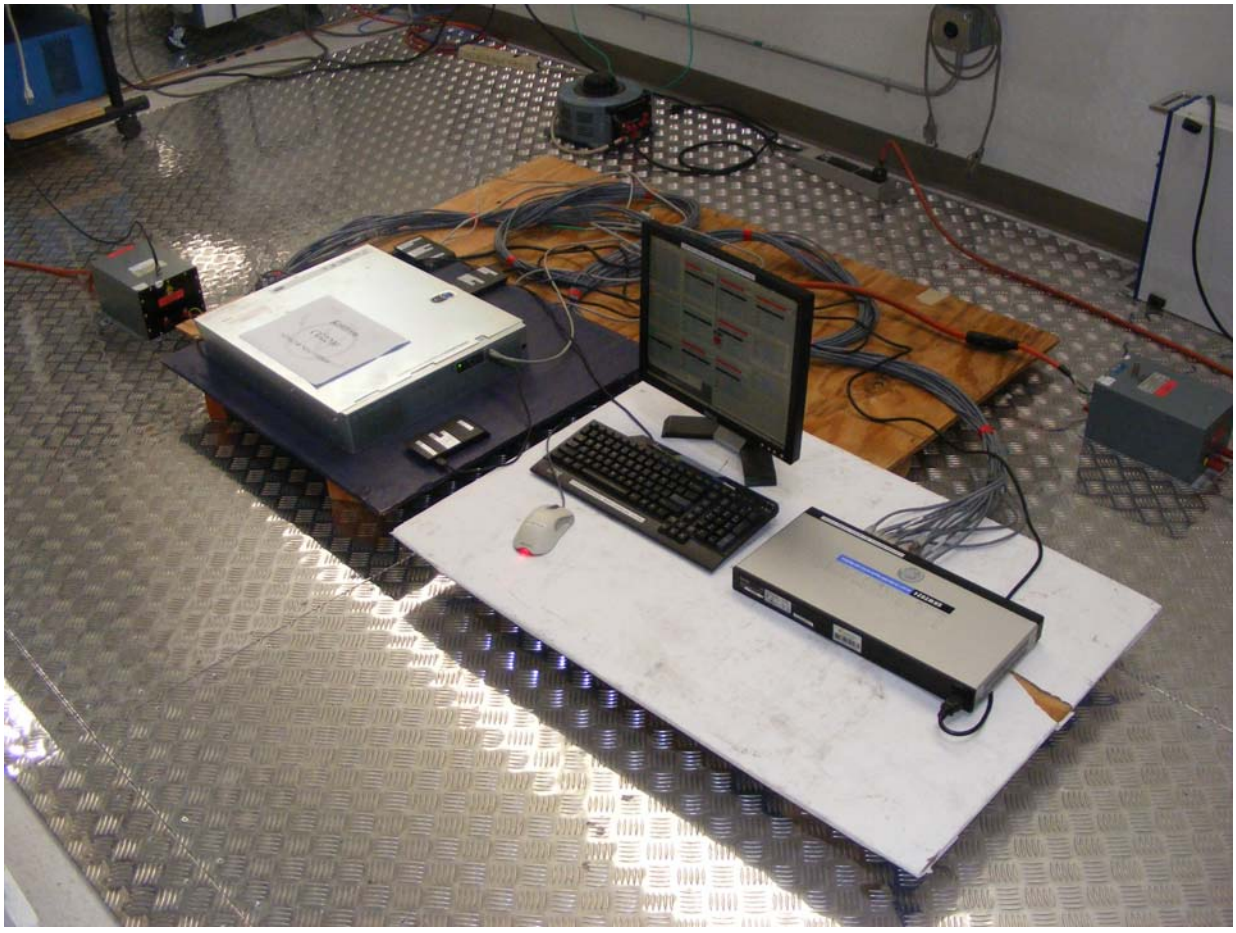


Photograph 8. EFT Immunity Test Configuration



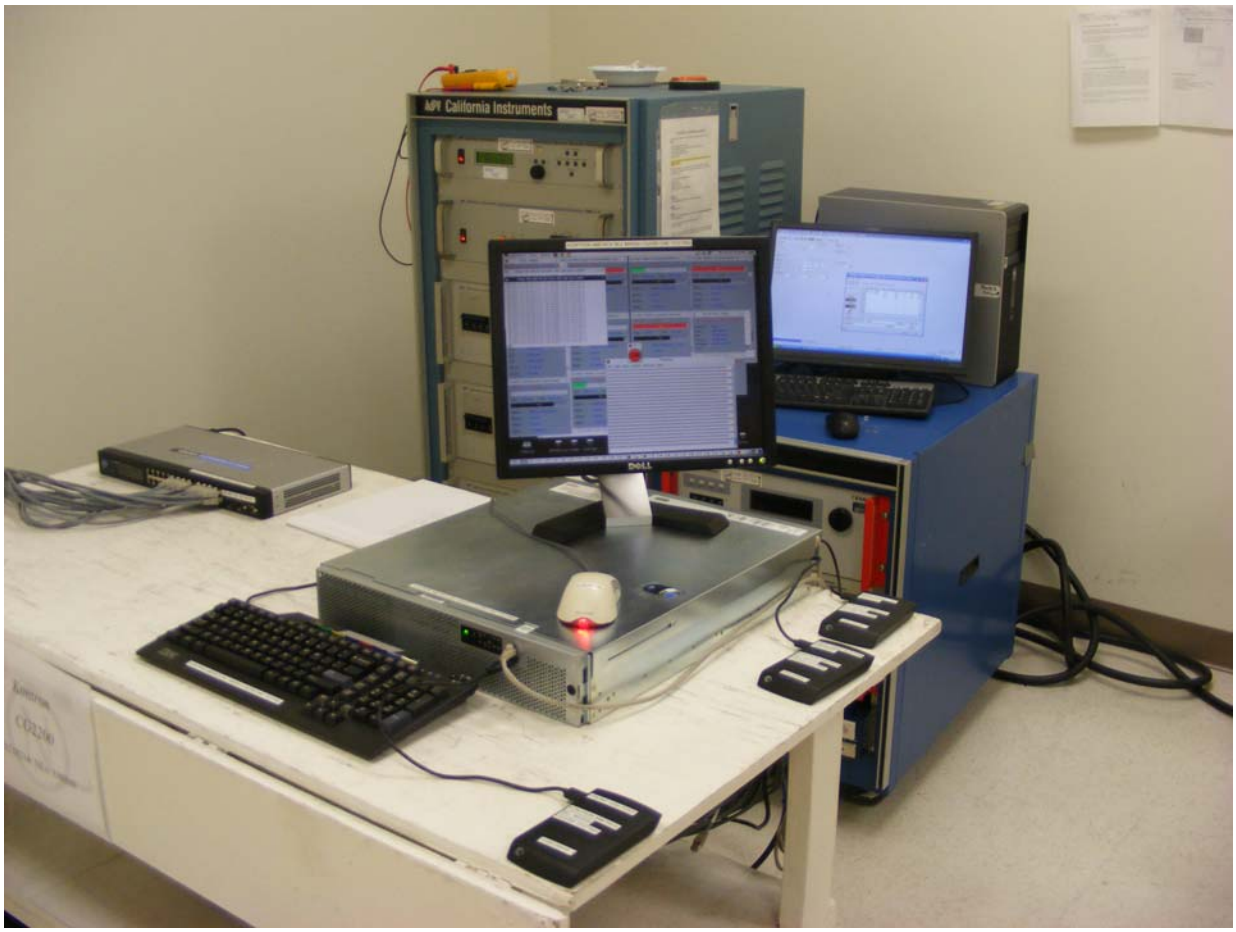
Photograph 9. Power Line Surge Immunity Test Configuration

Photograph 10. RF Conducted Immunity Test Configuration



Photograph 11. Power Frequency Magnetic Field Immunity Test Configuration

Photograph 12. Voltage Dips and Interruptions Immunity Test Configuration



APPENDIX A
A. Radiated Emissions Measurement Uncertainties

1. Introduction

ISO/IEC 17025:2005 and ANSI/NCSL Z540.3: 2006 require that all measurements contained in a test report be "traceable". "Traceability" is defined in the International Vocabulary of Basic and General Terms in Metrology (ISO: 1993) as: "the property of the result of a measurement... whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons, all having stated uncertainties".

The purposes of this Appendix are to "state the Measurement Uncertainties" of the conducted emissions and radiated emissions measurements contained in Section 5 of this Test Report, and to provide a practical explanation of the meaning of these measurement uncertainties.

2. Statement of the Worst-Case Measurement Uncertainties for the Conducted and Radiated Emissions Measurements Contained in This Test Report

Table 1: Worst-Case Expanded Uncertainty "U" of Measurement for a k=2 Coverage Factor

Conducted and Radiated Emissions Measurement Detection Systems	Applicable Frequency Range	"U" for a k=2 Coverage Factor
Spectrum Analyzer and LISN	100 kHz – 30 MHz	+/-2.8 dB
Spectrum Analyzer and Telecom LISN	100 kHz – 30 MHz	+/-1.38dB
Spectrum Analyzer, Pre-amp, and Antenna	30 MHz-200 MHz	+/-3.9 dB
Spectrum Analyzer, Pre-amp, and Antenna	200 MHz-1000 MHz	+/- 3.5 dB
Spectrum Analyzer, Pre-amp, and Antenna	1 GHz - 18 GHz	+/-2.6 dB

NOTES:
1. Applies to 3 and 10 meter measurement distances
2. Applies to all valid combinations of Transducers (i.e. LISNs, Line Voltage Probes, and Antennas, as appropriate)
3. Excludes the Repeatability of the EUT

3. Practical Explanation of the Meaning of Radiated Emissions Measurement Uncertainties

In general, a "Statement of Measurement Uncertainty" means that with a certain (specified) confidence level, the "true" value of a measurand will be between a (stated) upper bound and a (stated) lower bound.

In the specific case of EMC Measurements in this test report, the measurement uncertainties of the conducted emissions measurements and the radiated emissions measurements have been calculated in accordance with the method detailed in the following documents:

- ANSI Z540.2 (2002) Guide to the Expression of Uncertainty in Measurement
- NIS 81:1994, The Treatment of Uncertainty in EMC Measurements (NAMAS, 1994)
- NIST Technical Note 1297(1994), Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results (NIST, 1994)

The calculation method used in these documents requires that the stated uncertainty of the measurements be expressed as an "expanded uncertainty", U, with a k=2 coverage factor. The practical interpretation of this method of expressing measurement uncertainty is shown in the following example:

EXAMPLE: Assume that at 39.51 MHz, the (measured) radiated emissions level was equal to +26.5 dBuV/m, and that the +/- 2 standard deviations (i.e. 95% confidence level) measurement uncertainty was +/- 3.4 dB.

APPENDIX B
B. Nemko USA, Inc. Test Equipment & Facilities Calibration Program

Nemko USA, Inc. operates a comprehensive Periodic Calibration Program in order to ensure the validity of all test data. Nemko USA's Periodic Calibration Program is fully compliant to the requirements of NVLAP Policy Guide PG-1-1988, ANSI/NCSL Z540.3: 2006, ISO 10012:2003, ISO/IEC 17025:2005, and ISO-9000: 2000.Nemko USA, Inc.'s calibrations program therefore meets or exceeds the US national commercial and military requirements [N.B. ANSI/NCSL Z540-1-1994 replaced MIL-STD-45662A].

Specifically, all of Nemko USA's primary reference standard devices (e.g. vector voltmeters, multimeters, attenuators and terminations, RF power meters and their detector heads, oscilloscope mainframes and plug-ins, spectrum analyzers, RF preselectors, quasi-peak adapters, interference analyzers, impulse generators, signal generators and pulse/function generators, field-strength meters and their detector heads, etc.) and certain secondary standard devices (e.g. RF Preamplifiers used in CISPR 11/22 and FCC Part 15/18 tests) are periodically recalibrated by:

- A Nemko USA-approved independent (third party) metrology laboratory that uses NIST-traceable standards and that is ISO Guide 25-accredited as a calibration laboratories by NIST; or,
- A Nemko USA-approved independent (third party) metrology laboratory that uses NIST-traceable standards and that is ISO Guide 25-accredited as a calibration laboratory by another accreditation body (such as A2LA) that is mutually recognized by NIST; or,
- A manufacturer of Measurement and Test Equipment (M&TE), if the manufacturer uses NIST-traceable standards and is ISO Guide 25-accredited as calibration laboratory either by NIST or by another accreditation body (such as A2LA) that is mutually recognized by NIST; or
- A manufacturer of M&TE (or by a Nemko USA-approved independent third party metrology laboratory) that is not ISO Guide 25-accredited.(In these cases, Nemko USA conducts an annual audit of the manufacturer or metrology laboratory for the purposes of proving traceabilty to NIST, ensuring that adequate and repeatable calibration procedures are being applied, and verifying conformity with the other requirements of ISO Guide 25).

In all cases, the entity performing the Calibration is required to furnish Nemko USA with a calibration test report and/or certificate of calibration, and a "calibration sticker" on each item of M&TE that is successfully calibrated.

Calibration intervals are normally one year, except when the manufacture advises a shorter interval or if US Government directives or client requirements demand a shorter interval. Items of instrumentation/related equipment which fail during routine use, or which suffer visible mechanical damage (during use or while in transit), are sidelined pending repair and recalibration.(Repairs are carried out either in-house [if minor] or by a Nemko USA-approved independent [third party] metrology laboratory, or by the manufacturer of the item of M&TE).

Each antenna used for CISPR 11 and CISPR 22 and FCC Part 15 and Part 18 radiated emissions testing (and for testing to the equivalent European Norms) is calibrated annually by either a NIST (or A2LA) ISO Standard 17025-Accredited third-party Antenna Calibration Laboratory or by the antenna's OEM if the OEM is NIST or A2LA ISO Standard 17025-accredited as an antenna calibration laboratory. The antenna calibrations are performed using the methods specified in Annex G.5 of CISPR 16-1(2003) or ANSI C63.5-2004, including the "Three-Antenna Method". Certain other kinds of antennas (e.g. magnetic-shielded loop antennas) are calibrated annually by either a NIST (or A2LA) ISO Standard 17025-accredited third-party antenna calibration laboratory, or by the antenna's OEM if the OEM is NIST or A2LA ISO Standard 17025-accredited as an antenna calibration laboratory using the procedures specified in the latest version of SAE ARP-958.

In accordance with FCC and other regulations, Nemko USA recalibrates its suite of antennas used for radiated emissions tests on an annual basis. These calibrations are performed as a precursor to the FCC-required annual revalidation of the Normalized Site Attenuation properties of Nemko USA's Open Area Test Site. Nemko USA, Inc. uses the procedures given in both Sub clause 16.6 and Annex G.2 of CISPR 16-1 (2003), and, ANSI C63.4-2003 when performing the normalized site attenuation measurements.